33rd YEAR

CHEMICAL WEEKLY

VOL. XXXIII JUNE 21, 1988 NO. 41

Chemox Chemox Chemox Chemox Chemox

METHANOL

ACETONE

CAUSTIC FLAKES & LYE

NITRO BENZENE

PENTAERYTHRITOL

With nationwide distribution network and being number one source, we can deliver steady supply of quality products on time any quantity, anywhere.

Chemox Chemox Chemox Chemox Chemox Chemox

For your requirements please contact:

CHEMOX CHEMICAL INDUSTRIES LIMITED

Corporate office: Pooran Asha Building, 317, Narsi Natha Street, Bombay-400 009.
Phone: 32 90 17-18-19, 33 31 31-32, 33 56-20. Gram: INCHEMOX Telex: 11-76723 CHMX IN

BRANCHES:

HYDERABAD Tel: 264540

BANGLORE Tel: 368013

DELHI Tel: 2928059, 2920759

AHMEDABAD Tel: 360827, 367125

PUNE

PDI

PRODUCTS FOR PAINT INDUSTRIES

SYNTHETIC POLYMER EMULSIONS

- Vinyl Acetate Homopolymer — Pidivyl AP
- Vinyl Acetate Copolymer — Pidivyl 7025
  — Pidivyl CP 651
- Styrene-Acrylic — Pidicryl 3252
- Acrylics — Pidicryl 882
  — Pidicryl 3522
- Copolymer Emulsions (Versatic Acid Based) — Pidivyl VV8

THICKENER

- Ammonium Polyacrylate — Pidicryl 4310

DISPERSING AGENT

— Pidisper 6200

THERMOPLASTIC ACRYLIC RESINS

- Solids — Kondicryl PRL 122
  — Kondicryl PRL 133
  — Kondicryl PRL 166
  — Kondicryl PRL 199
- Solutions — Kondicryl SV 201
  — Kondicryl SV 204

NON-IONIC EMULSIFIERS

— Pidinons

ORGANIC PIGMENT POWDERS

— Acrolite
AZO Pigments
— Violet Pigments

ORGANIC PIGMENT PASTE

— Pidifines

We have a modern R & D and Technical Service Laboratory wherein we can make tailormade products/develop products to your specific requirements, as well as offer technical services.

PDI

PDI Chemicals Pvt. Ltd.

Marketing Division, Ramkrishna Mandir Road, Off. M. Vasanji Road Andheri (East), P. B. No. 17401, Bombay - 400 059. Phone : 63475

Edited by R. Raghavan and published by N. R. Rajagopalan on behalf of owners, Sevak Publications, 306, Shri Hanuman Industrial Estate, Wadala, Bombay-400 031. Madras Office : 27, Begum Sahib 3rd Street, 1st Floor Mount Road, Madras-600 002. Phone: C/o. 831808 and printed by N. R. Rajagopalan, at Sevak Publications 25, North Mada Street, Thiruvanmiyur, Madras-600 041. Phone: 419285 Registered with Registrar of Newspapers for India vide No. R. N. 1972/57.

UNIT
7 JUN

If You Are Determined

THAT YOUR PRODUCT SHOULD BE THE BEST
AND SAFE IN THE MARKET
Then You Will Hit It Off With Our

SILICA GEL

Indicating and Non-Indicating

Activated Alumina Balls

FOR

PHARMACEUTICALS & INDUSTRIES

WE WILL MEET YOUR SPECIFICATIONS
For Removal of Moisture & Control of Humidity from

AIR & GAS

Ensure Your Product By Using

SILICA GEL BAGS

(Indicating --- Non-Indicating)

Please Contact:

Industrial Organics

100, Dadasaheb Phalke Road, (C.Rly), BOMBAY - 400 014.

Phones: Office: 448051/448661 Residence: 4221658

Associates

DRIER CHEMICALS

Formic acid 85% (BASF)
Formaldehyde 37%
Methanol -- RCF
Tanker Load & Drums

Acetone (HOC) (Tanker Load & Drums)
T.B. Linear Alkyl Benzene (LAB)
Para Tertiary Butyl Phenol (PTBP) (Japan)

Melamine
N-Butanol
Isobutanol
Isopropanol (IPA)
Phenol
Methylene Chloride

Aniline Oil
Nitro Benzene
Cellosolve (Belgium)
Propylene Glycol
Thionyl Chloride (Imported)
Octanol (2-Ethyl Hexanol)

D.O.P.	-- W.Germany
PVC Resin Suspension Grade	-- Brazil/Yugoslavia
Caprolactum (Bayer)	-- Belgium/Netherland
Ethylene Vinyl Acetate (EVA)	-- Dow, American
Sulphamethaxole	-- Japan
Thiamine HCl (for A.U. only)(Vitamin B1)	-- Takeda, Japan
Cloxacillin Sodium (for A.U. only)	-- Singapore
Hydrazine Hydrate	

CONTACT:

ORIENTAL INDUSTRIES

229/231, Samuel Street, IIIrd Floor, Bombay - 400 003

Phones: Off: 339927/346398/343923 Resi:4376132/4372052/4377159/537243/541323

Gram: ORIENDUS Telex: 011-2566 OM IN

WHERE WOULD YOU GO IF YOU NEEDED QUALITY CHEMICALS?

AUTHORISED DISTRIBUTORS OF R.C.F.:

METHANOL

SODIUM NITRATE • **SODIUM NITRITE**

AMMONIUM-BI-CARBONATE

AUTHORISED DISTRIBUTORS OF GSFC:

METHYL ETHYL KETONE OXIME (MEK OXIME)

DEALER OF HINDUSTAN ORGANIC CHEMICALS:

ACETONE • **PHENOL**

DEALER OF CENTURY RAYON:

ANHYDROUS SODIUM SULPHATE

DEALER OF STANDARD ALKALI:

CAUSTIC SODA LYE • **CAUSTIC SODA FLAKES**

AUTHORISED STOCKIST OF T.T.P. LTD.:

TITANIUM DIOXIDE

POPAWALA & CO.

1502, MAKER CHAMBERS V, 221, NARIMAN POINT, BOMBAY-400 021. INDIA
CALL: 23 01 56 • 24 45 93 • 287 11 15 TELEX: 011-4164 POP IN

Please Contact for Prompt Supplies Of:

Anhydrous Ammonia Gas

In 5/7/9 Tons Capacity Road Tankers and
In 60/50/40 Kgs. Capacity Cylinders.
Also Available LIQUOR AMMONIA
In Carboys and Drums

Surat Ammonia Supply Company

B.N. Chambers, 2nd Floor, R.C. Dutt Road, Baroda 390 005.
Phones: 326503, 323827, 321897 & 320676 * Gram: SASCO * Telex: 0175-497 SASC-IN
Vapi Office: Shed No. 19, C-1, B. Type, Vapi Industrial Estate, G.I.D.C., Vapi-396 195. **Phone: 685.**
Ankleshwar Office: J-3435, G.I.D.C. Estate, Ankleshwar-393 002, Gujarat State. **Phone: 2449.**

BOMBAY AMMONIA & CHEMICAL CO.,

204, Wing-B, Neelam Centre, 2nd Floor, Hind Cycle Road, Behind Glaxo, Worli, Bombay 400 025.
Phones: 4948652/4948659/4946686

FOR YOUR REQUIREMENTS FROM READY STOCK:

CHEMICALS:

Thiourea
Melamine
Calcium Carbonate Activated (OMYA BSH Fillers)
Trichloroethylene
Glycerine
Beta Picoline
Thymol Crystal
Nonyl Phenol
Acetic Anhydride
Adipic Acid
Pyridine Pure 2°
PVC Resin Suspension 67-D
Gum Rosin N & WW Grade
Toshiba Silicon Emulsion TSM-630
Ceto Stearyl Alcohol Alfol-1618-H
Hydrogen Peroxide 30%
Cresylic Acid
Gallic Acid 99.5%
Monoethylene Glycol
Methylene Chloride
Graphite
Cellosolve
Acrylamide
Methyl Isobutyl Ketone
Portable Generator
Paraformaldehyde 91%
Potassium Carbonate
Low Density Polyethylene
Polyvinyl Alcohol GH-17
Lithopone
Laboratory & Reagent
Acetic Acid 99.5% Glacial
Zinc Ash * Iodine

INTERMEDIATES

Cyanuric Chloride
Benzaldehyde
Sodium Dichromate
Orthotoluidine
Sodium Chromate
Chrome Oxide
Meta Toluene Diamine
N,N-Diethylaniline
N-Methylaniline
Sumifix Black B
Alpha Naphthol

Please Contact:

GUPTA TRADING COMPANY

5, Apeejay House, 130, Apollo Street, Fort,
BOMBAY - 400 023

Phone Nos. Office: 244403/222059
Resi:8229085/8121281

Gram: "CARPEDIU

NOW AVAILABLE:

96% A.D. DODECYL BENZENE SULPHONATE
(HARD ACID SLURRY)

LINEAR ALKYL BENZENE SULPHONATE
(SOFT ACID SLURRY)

SULPHONATED WITH SULPHUR TRI-OXIDE

MANUFACTURERS:

Arochem Silvassa Pvt. Ltd.,
Industrial Estate, Silvassa-396 230 -- Via Vapi,
Dadra & Nagar Haveli.
Phone: 289, 291 Gram: AROCHEM SILVASSA
Telex: 0185 201 ARCM IN

BOMBAY	:	Scent House, Station Road, Goregaon (West), Bombay-400 062. **Phone: 6722280, Gram: AROSILVASSA, Telex: 011-78077 FAIS IN**
KANPUR	:	Chemdet Enterprises, Shop 67, 75/232, Sabji Mandi, Kanpur. **Gram: SCENTOUS, Telephone: 64551**
MADRAS	:	Syndet Enterprises, 90, Govindappa Naick Street, Madras-600 001. **Gram: SCENTOUS, Telephone: 35532**
DELHI	:	B. Shantilal & Co., 1025/5, First Floor, Gali Teliyan, Tilak Bazar, Delhi-110 006. **Gram: INDOSIL, Telephone: 291 3973/0649**

AVAILABLE REGULARLY

SPRAY DRIED 40% A.D. ANIONIC DETERGENT POWDER NEUTRAL-pH: 7-7.5

In Snow White Colour & Free Flowing Bulk Density below 0.3

Manufacturers

Silvassa Syndet Private Limited

Amli Industrial Estate,
SILVASSA - 396 230 -- Via Vapi,
Dadra & Nagar Haveli
(Phone: 280)

Attention

Manufacturers of
CHLOROQUINE PHOSPHATE

Available BEST QUALITY
META CHLORO ANILINE

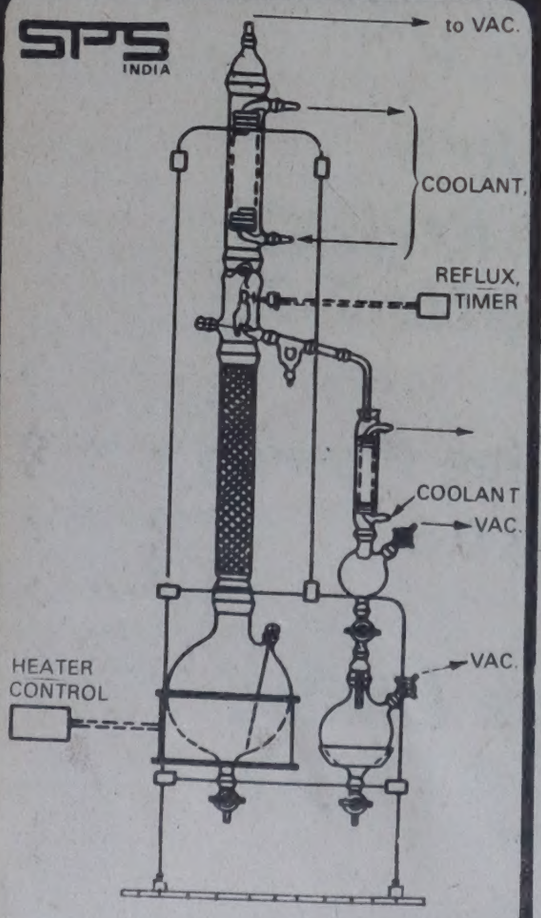
Manufacturer:
VCC Valiant
Chemical Corporation
5, Chheda Bhavan, 4th Floor,
98, Masjid Siding Road, (Surat Street)
Bombay 400 009.
Phones: 338750/330315/331918/333339

Resi: 6491255 (Manoj)
Resi: 6492002 (H.L. Gala)
6492285

Factory:
Plot No. 2906, G.I.D.C.,
Sarigam 396 155, Gujarat

SUREKH

SPS INDIA



Now Readily Available !

- All Glass Reaction & Distillation units upto 200 ltrs.
- Pipelines & Fittings upto 12" diameter.
- Teflon Valves & Glass stopcocks.
- Column Components & Heat Exchangers.
- Complete Structure & Erection of above items.
- Laboratory Ground Glass Interchangeable joints.

Please Contact
STANDARD SCIENTIFIC GLASS INDUSTRIES

Office
625-A, Nariman Bldg.,
Jagannath Shankarsheth Rd.,
BOMBAY-400 002.
Phones 256811 □ 315201
Grams STANGLA

Factory
G-2, Sainath Industrial Estate,
Off. Aarey Road, Goregaon (E),
BOMBAY-400 063.
Phone: 699236

Wanted Stockists, & Representatives

PRINT-DESIGN

HISTORY IN SIZING TECHNOLOGY...

INDOKEM

(A KHATAU ENTERPRISE)

introduces Revolutionary Sizing Technology in India from

SEYDEL-U.S.A.

(World Masters in Sizing)

After successfully introducing

SEYCOFILM PE-230

(Synthetic Resin-Substitute for PVA and acrylics, which will assure at least 10-25% reduction in sizing cost)

Now offers

SICO-12

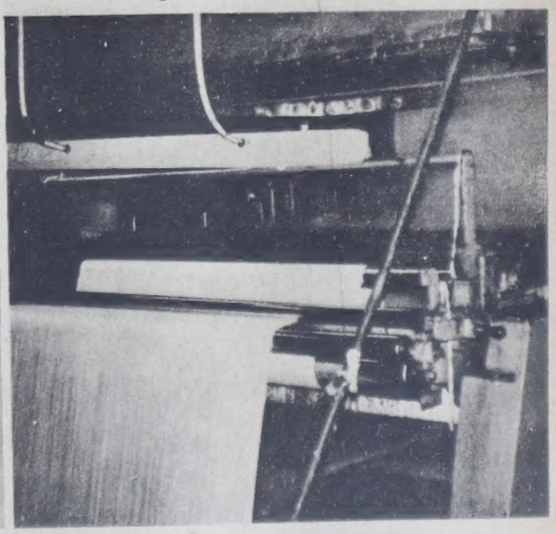
(Substitute for Mutton Tallow)

Also introducing shortly

FILAMENT SIZING CHEMICALS

(Suitable for WATER JET and AIR JET LOOMS)

Modern High-Speed Weaving means High Quality Sized Beams.



The objective can be achieved only by Sophisticated Items from SICO RANGE

SICO-RANGE
The Name that spells Quality & Economy

INDOKEM

For further details, please contact:

INDOKEM LIMITED

Udyog Mandir Compound,
7/C, Bhagoji Keer Marg,
Mahim (W), Bombay-400 016.

Phone: 462721 • 462728 • 462842 • 457765 • 456299 • 452029. Telex: 011-71348 Gram: INDOKEM

ATTENTION ! EXPORTERS & LOCAL CONSUMERS
AVAILABLE EX-STOCK
BEST QUALITY

2,5 DI CHLORO ANILINE
PARA NITRO PHENOL
2,5 DI CHLORO NITRO BENZENE

(RED 3GL QUALITY)

Contact Manufacturers:

GEMCHEM INDUSTRIES

3B, Gangavihar, 94, Kazi Sayed Street, Bombay - 400 003
Phones: 339272/337712 * Telex: 011-73254 ALAB IN * Cable: 'GANESHCHEM'

Available Either Ex-Stock or From Incoming Consignment in Rupee Payment.

SHIMADZU UV-VIS SPECTROPHOTOMETER: Model UV -- 120 - 02
Single Beam.
MODEL UV -- 150 - 02 Double Beam.
MODEL UV -- 160 Recording Spectrophotometer (CRT display)
MODEL UV -- 240 Graphicord..... (Recording Spectrophotometer)

INFRA RED SPECTROPHOTOMETER IR -- 408

SHIMADZU Analytical Electronic Balance
SARTORIUS Electronic Analytical Balances (Cap. 120 grams, 200 grams, 300 grams)
SARTORIUS Mechanical Analytical Blances. Preweighing System.
METTLER ELECTRONIC Analytical Balance Models Available AE-166, AE-160, AE-200, AE-163)
BROOKFIELD VISCOMETER

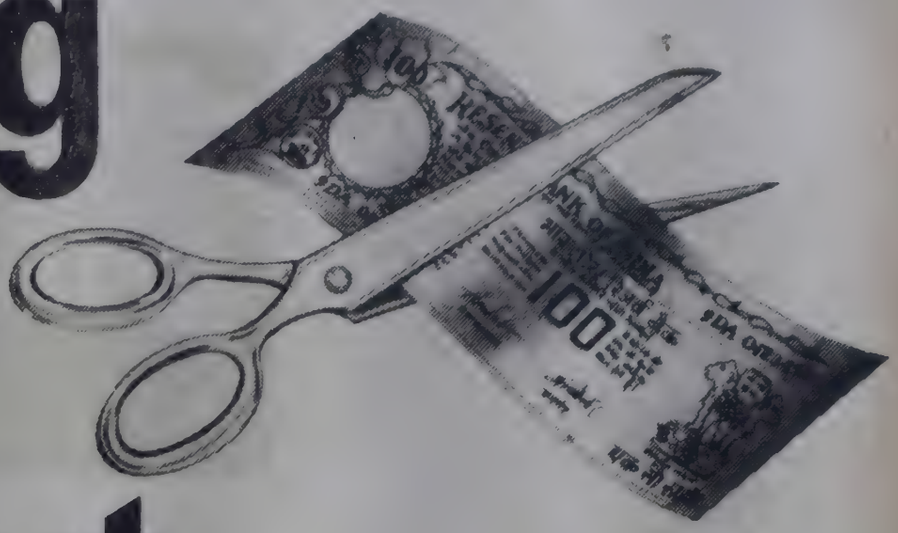
AND ALSO AVAILABLE

HULFICHTON (ICHTHAMMOL) -- USSRP GRADE

M.J. EXPORTS PVT. LTD.,

(Import Department)
113, Jolly Maker Chambers No. 2, Nariman Point, BOMBAY-400 021.
Tel: 2020644 Cable: SYNEXPORT Telex: 114677/112478 MJAY IN

Cutting Cost Without Cutting People



FINE ORGANICS offer 100% concentrates for making your own Textile auxiliaries like SOFTNERS (Nonionic, Cationic, Reactive or Anionic), MERCERISING & WETTING AGENTS, PE & WAX EMULSIONS, SCOURING & WASHING AGENTS, SYNTHETIC PRINTING THICKENERS FOR Pigment, Reactive or Disperse/Acid Colour Printing, Replacements of Kerosene or Sodium Alginate, etc .

By using 100% Concentrates of FINE ORGANICS, you can bring down your auxiliary cost to half. Meet us for practical demonstration.

For further details, please write to:

FINE ORGANICS

15/2 NEELKANTH MARKET, M.G. ROAD, GHATKOPAR (E), BOMBAY-400 077.
PHONES: 5135356, 5135471, 5135687

PCI SILICONES

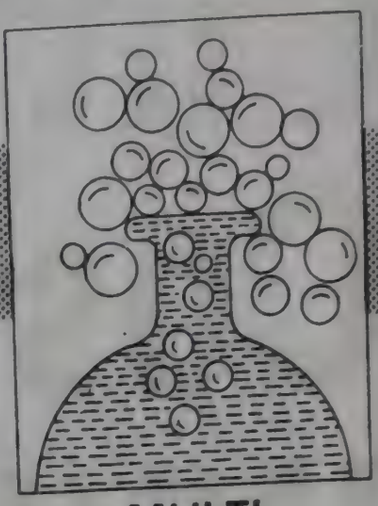
ATTENTION !

Actual Users/Dealers/Stockists Reduce Your Cost By Using Our Products

PREMOULD-600
SILICONE MOULD RELEASE AGENT FOR RUBBER INDUSTRIES.

PRESIL-300
SILICONE EMULSION FOR TEXTILE INDUSTRIES.

& AMINO SILICONES



MULTI FOAMER N.P. J.
SILICONE DEFOAMER/ ANTI FOAM EMULSION

Please Contact:

PREMIER CHEMICAL INDUSTRIES

Shah & Nahar Industrial Estate, A-1, Gala No. 109, 1st Floor, Near Sun Mill Compound, Lower Parel (W), Bombay - 400 013.
PHONE : 4949771 — 4942176 — 4945869
Branch: 538, Jash Market, Ring Rd., SURAT-395 002. PHONE: 40136

PRINT DESIGN

TRIETHYLAMINE

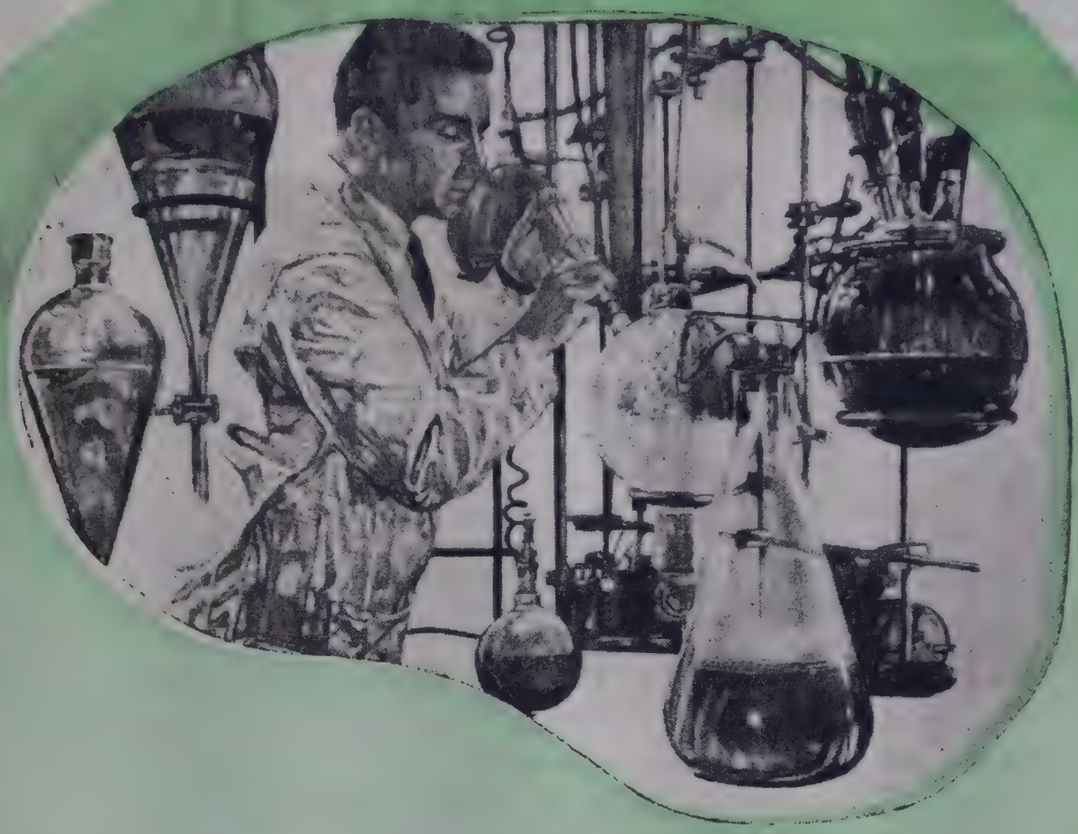
ASSURED QUALITY
DEPENDABLE SERVICE
PROMPT DELIVERY

Manufactured by:
Alkyl Amines Chemicals Limited

Vashi Office:
401-407, Nirman Vyapar Kendra, Plot No. 10, Sector-17, DBC, Vashi, New Bombay-400 703.
Tel: 0215-682535/36. Tlx: 011-77136.

SUPERTEX®

Supermind



To reach the top and stay there requires qualities that are extraordinary. Qualities of creative finance, of man-power management, of product development and innovation, of effective message communication to the masses, and lastly; fostering good public relations. To conceive and execute the above plans requires a clear thinking process ; qualities of an acute and alert mind. Supertex have it. Thus the equation; Supertex Supermind !

SUPERTEX®

SUPERTEX® (INDIA) CORPORATION

132, Dr. Annie Besant Road, Bombay-400 018.
Phone: 493 38 18, 493 54 82, 493 60 41.
Grams : 'Thinogum', Telex : 011-75643 SUPR.

Chemicals for: Sizing, Desizing, Scouring, Mercerising, Dyeing, Printing and Finishing of textiles.

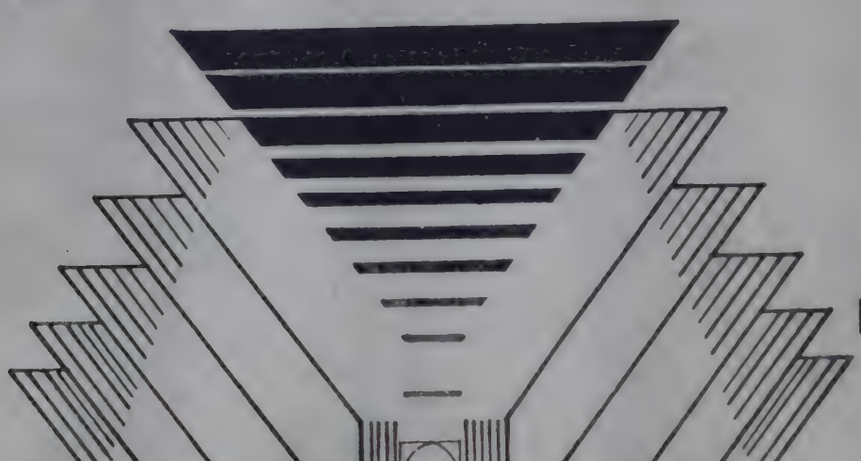
a M.G. Saraf Enterprise

Most trusted name in chemicals.

CHEMICALS
FERTILIZERS
SUGAR, CEMENT
PHARMACEUTICALS
DYES & INTERMEDIATES
OTHER INDUSTRIES

In the multifarious world of industrial filtration, one name strikes the right chord

PROFIL® FILTER FABRICS



• Wide Ran
Polypropylene, Cotton, Polyest
HDPE, Spun and Multifilame
• Made to ord
Filter fabrics that a
processed, fabricated a
sized exactly to yo
machine's specificatio
• Extensive distribution facilit
• Guaranteed quality and prom
after sales serv

KFPL LTD.

Dedication to better Filtration

KHOSLA FILTER
PRIVATE LIMITE

Head Office 3/623, Navjiv
Lamington Road, Bombay-400 0
Phones 897012 • 897
Grams: KHOFIL Telex 011-76780-ID

Available At Most Competitive Rates

Sodium Sulpha Hydrate Solution 30-32% [NaHS]

(AN EXCELLENT REDUCING AGENT)

Rubber Chemicals (BAYER)
Stearic Acids All Grades (OSWAL AGRO)
Zinc Oxide (BHARAT)
Sulphur (SOLAR)

Please Contact:

Jagdishprasad Vijaykumar

708, Maker Chambers V, Nariman Point,
Bombay - 400 021
Gram: BHIMRAJKA Phones: 2044476/2048289
Telex: 011-76720

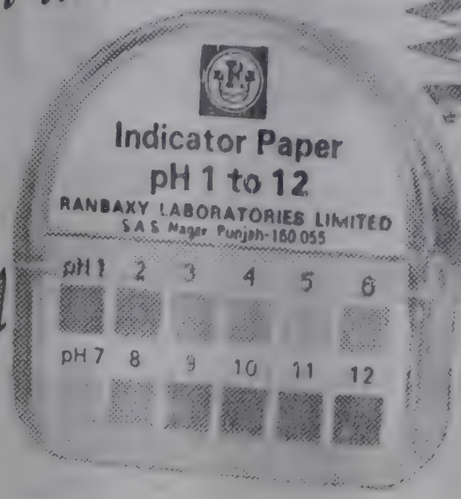
Consignment Agents For:
BAYER (INDIA) LIMITED
OSWAL AGRO MILLS LIMITED

Another first
from Ranbaxy

Unique dispenser — first time in India!

RANBAXY'S Indicator Papers

for pH measurement that's simple, fast and economical



Ranbaxy's range of Indicator papers
pH 1 — 12
pH 0 — 3.0
pH 3.0 — 5.5
pH 4.5 — 7.5
pH 6.0 — 8.0
pH 8.0 — 9.5

Ranbaxy's Indicator papers come in both wide and narrow range papers and together cover the entire pH range. The wide range papers show a distinct colour change for each pH unit and narrow range papers for each half pH unit.

The unique dispenser pack available for the first time in India protects the indicator paper from fumes and spillages providing an optimum shelf life.

Each dispenser contains one roll of 4.8 m length (also carries a colour chart), sufficient for about 200 tests.

For your requirements, please contact:

RANBAXY
LABORATORIES LIMITED

Chemical Division Marketing Office
16, Shopping Arcade, Connaught Circus
New Delhi-110 001
Phones : 323738, 32373
Telex : 031-4220
Cable : RANBAXYLAB
CONNAUGHT CIRCUS

Put RANBAXY Reliability in your laboratory!

FOR YOUR REGULAR REQUIREMENTS OF

OXALIC ACID, DIETHYL OXALATE
ACETIC ACID, ETHYL ACETATE
& BUTYL ACETATE

CONTACT MANUFACTURERS:

The Sanjivani (Takli) Sahakari Sakhar Karkhana Ltd.

Sahajanand Nagar, P.O. Singanapur, Tal. Kopargaon,
District: Ahmednagar, (Maharashtra State)

Phone: 334, 391, 305, 208 (Kopargaon)
6125614 (Bombay)

Gram: "SANJIVANI"
SHINGANAPUR

GUJARAT AROMATICS LIMITE

COUNTRY'S ONLY MANUFACTURER OF SYNTHETIC CRESOLS/CRESYLIC ACID
AND XYLENOLS
CAN NOW SUPPLY

PURE GRADE META CRESOL (98%+)

AND

PARA CRESOL (95-97%)

MARKETING DIVISION:
P.O. ATUL 396 020
DIST. VALSAD
GUJARAT

TEL : 262 - 265 (ATUL)
TLX : 180 - 212 ATUL IN
183 - 232 ATUL IN

BEST BY EVERY TEST

PVC STABILISERS

* ORGANO TIN STABILISERS

* METALLIC STEARATES

(Calcium, Barium, Cadmium, Aluminium, Magnesium, etc.)

* LEAD STABILISERS

PVC Processors, Please Contact the Manufacturers:

GANDHI PAREKH INVESTMENT CORPORATION LIMITED

Registered Office: Maker Bhavan No. 2, 18, New Marine Lines, Bombay 400 020.
Phone: 252559/251723 * Gram: 'JYOTIJOM' * Telex: 011-2081 INCC-IN

Works: (1)Lal Bahadur Shastri Marg, Ghatkopar, Bombay 400 086
Phones: 582293 / 582835

(2) Plot No. 1, Nandesari Industrial Area, P.O. Nandesari, Dist. Vadodara-391 [illegible] Gujarat State
Phones: 221-222-223-286 * Gram: 'PLASTICIZER', Nandesari, Vadodara
Telex: 175-394 INCC IN

FOR YOUR REGULAR SUPPLIES OF

SULPHURIC ACID 98% & SULPHURIC ACID BATTERY GRADE (Concentrated)

PLEASE CONTACT THE MANUFACTURERS

GOPALANAND RASAYAN

(A Division of the Indian Link Chain Mfg. Ltd)

We Ensure

* REGULAR SUPPLIES ON LONG TERM BASIS
* MEETING WITH ALL I.S.I. SPECIFICATIONS
* PROMPT DELIVERY AS PER YOUR SCHEDULE

Registered Office
Lal Bahadur Shastri Marg
Bombay - 400 078
Phones: 582311/582312

Marketing Division:
Sonawala Building, 2nd Floor,
59, B.S. Marg, Bombay-400 023
Phone: 256519/317387

Factory:
Plot No. D18, MIDC Area
Tarapur, Post Boisar-401
Phone: 421/422

For Your Requirements Of:

Copper Phthalocyanine Crude (CPC)
Copper Phthalocyanine Blue
(ALFA Pigment)

Please Contact:

AEGIS CHEMICALS

Factory:
Shed No. C-1/B, 351,
Phase-II, G.I.D.C. Estate,
Vatva, Ahmedabad 382 445.
Telephone No.: 877437

Office:
1295, Madan Gopal Haveli Road,
Opp. Hanuman's Temple,
Astodia, Ahmedabad 380 001.
Telephone No. 344504 345031

Cyclohexanone
Cyclohexane
Mix. of Cyclohexanone
Cyclohexanol

MANUFACTURED BY:

Gujarat State Fertilizers Co. Ltd.

BARODA

Please Contact Authorised Distributors:

Crescent Chemicals

Sales Office:
56-B, Sanjay Bldg., No. 5, Mittal Estate
Andheri-Kurla Road, Bombay 400 059.
Tel: 6329110/6322136/6300157/6343555
Telex: 011-72284 CRES-IN
Grams:CRESOLVE, Bombay - 400 009

Branch:
5-E, Vasant Kutir,
R.C. Dutt Road.
Baroda - 390 005.
Phones: 324313/322279/320128
Grams: CRESCHEM, Baroda 390 0

A balance between Conservatism

and Modernism

People very often jettison their past prudence and learning and totally latch onto the modernist band-wagon. The wisdom of the past can be modified, re-patterned, and used in the modern context. This is especially necessary in the business world. This is what Texchem has been doing. We respect the advice of our forbears and still keep room for new blood. A philosophy that satisfies us and our customers.

Chemicals for :- Sizing Desizing, Scouring Mercerising, Dyeing Printing, & Finishing o textiles

TEXCHEM

TEXCHEM

132, Dr. Annie Besant Road, Bombay-400 018.
Phone: 493 38 18, 493 54 82, 493 60 41.
Grams : 'Thinogum', Telex : 011-75643 SUPR.

a M. G. Saraf Enterprise

Most trusted name in chemicals.

a M.G. Saraf Enterprise
Most trusted
name in chemicals

TC/ A /10

For Your Regular Requirements of:

ACTIVATED CARBON

Please Contact Manufacturers

M/s. AMAR INDUSTRIAL & FINE CHEMICALS

Head Office: 2, Sundaram Building, Sion Circle, Bombay - 400 022.
Phones: 475189/472586/477054 **Grams: "ACTSAMAR"**

Factory: Bye-Pass Road, Hoshiarpur - 146 001 (Punjab)
Phone: 3111 **Grams: "ACTSAMAR"**

LEADING MANUFACTURER OF QUALITY ACTIVATED CARBON OF VARIOUS GRADES SINCE OVER A DECADE. EQUIVALANT TO INTERNATIONAL STANDARDS

SUCCINIC ACID
POTASSIUM PERSULPHATE
POTASSIUM IODATE
POTASSIUM BROMATE

Directly from manufacturers:

R.B. CHEMICALS & AGRO INDUSTRIES PVT. LTD.

703, Dalamal House, 206, Nariman Point, Bombay 400 021
Tel: 244335 / 223148 **Tlx: 11-5474 RB IN**

Gram: WORKSTUDY, Bombay 400 021

For Your Requirements Of:

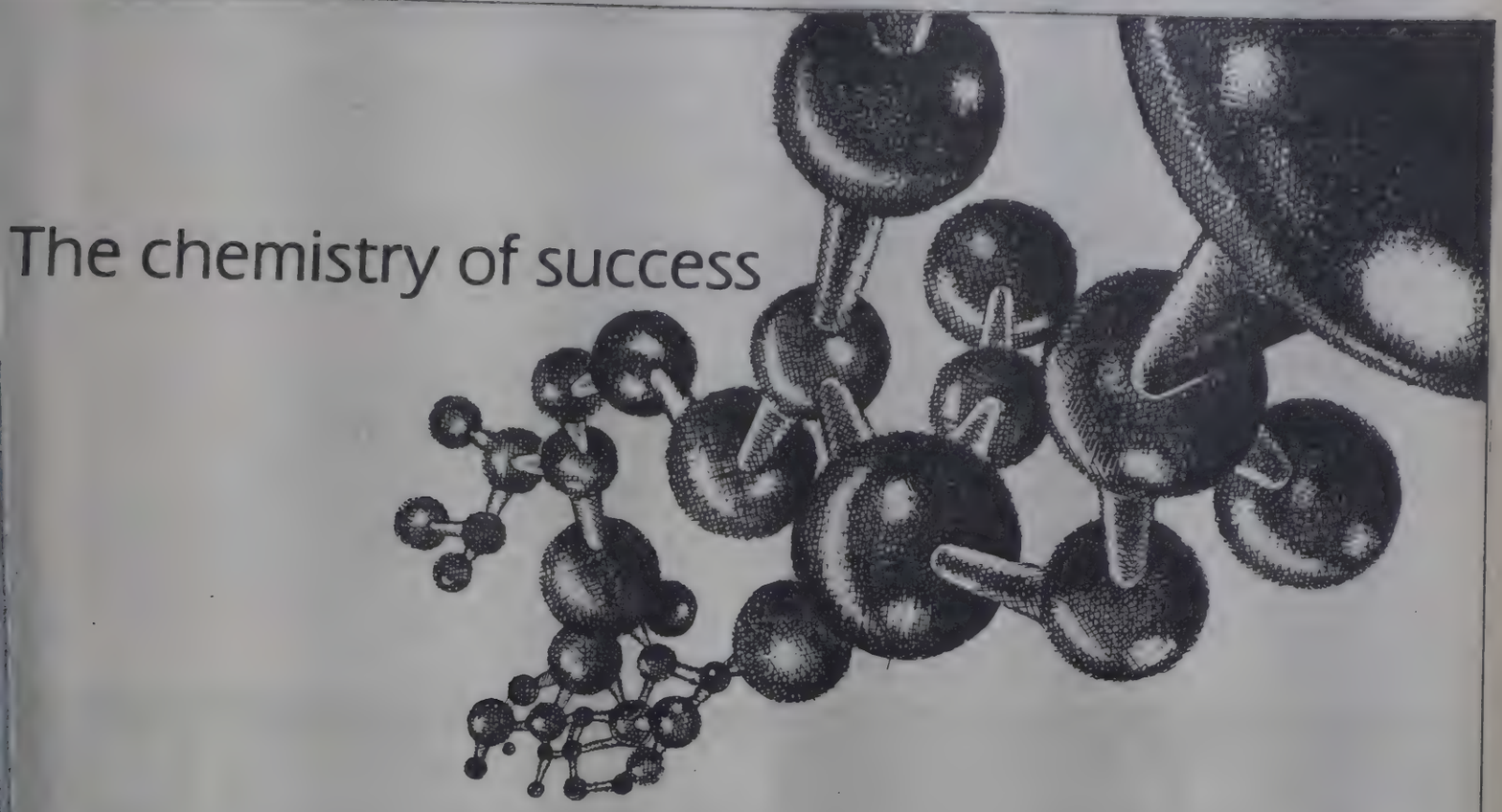
COBALT CARBONATE
COBALT ACETATE
COBALT SULFATE
COBALT NITRATE
COPPER CARBONATE
COPPER ACETATE
NICKEL NITRATE
NICKEL CARBONATE
NICKEL AMMONIUM SULPHATE
NICKEL SULPHAMATE SOLUTION
ZINC SULPHATE (PURE)
ZINC SULPHATE MONO HYDRATE (PURE)
ZINC CARBONATE
ZINC ACETATE
MANGANESE ACETATE
POTASSIUM BROMIDE

Contact Manufacturers:

M/s. EASTMEN CHEMICALS

Office
310/3, Jawahar Nagar, Road No. 16,
Goregaon (West), BOMBAY 400 062.
Tel: 6724940

Factory:
Bafna Compound, Veoor,
Palghar, Dist. THANA.
Tel: 298



It takes many shapes at AEGIS CHEMICAL INDUSTRIES LTD.

Wide industrial spectrum Behind every successful industry is a range of quality chemicals. And supplying them are Aegis. Leaders in the field for decades.

First in the field Aegis set up India's first and only fatty alcohol plant. With technology exclusive to a select few — Japan, USA, U.K., West Germany and India.

Aegis are pioneers in other areas too. In Formaldehyde, Hexamine, Pentaerythritol. And leaders in Refrigerant Gases and Hydrofluoric Acid. Products vital to a wide spectrum of industries. From oil exploration to water conservation. From cosmetics to furniture. From pharmaceuticals to construction. From detergents to stainless steel. From leather to plastics. From textiles to paints. From explosives to petrochemicals. From rubber to refrigeration. And a host of other applications.

The technology edge What makes Aegis the number one? A pioneering spirit. An emphasis on R&D and advanced quality control techniques. A socially responsible approach to environmental pollution and industrial safety. The latest international technology. And an integrated marketing and technical service support all over India. Add it all up! And you can see why the first name in chemicals is the last word in quality.

AEGIS CHEMICAL INDUSTRIES LTD.
Pioneers yesterday... Leaders today.

Corporate Office:
Baldota Bhavan, 117 Maharshi Karve Marg, Bombay 400 020.
Phones: 292059, 294715, 294166, 298193. Grams: "PENFORM".
Telex: 011-3764 ACIL-IN.

ARMS-AC-13-B

For Your Requirements Of:

ZINC ASH, ZINC DUST, ZINC OXIDE (OFF COLOUR)
BRASS ASH & COPPER ASH

Very Suitable for

Zinc Sulphate & Copper Sulphate

WE PURCHASE

Scrap -- Waste -- Ash -- Residues of

NICKEL -- TIN -- COBALT AND OTHER NON-FERROUS METALS

Please Contact: **HINDUSTAN METALS**

13, Broadway Shopping Centre, 1st Floor, Dadar T.T., Bombay-400 014

Gram: 'RESIDUE' Bombay-400 014

Phones: 4121356/4127014

Available at Competetive prices

BORAX

(Grannular, Powder, Crystals)

$Na_2B_4O_7 10H_2O$ -	99.5% min
Chlorides -	0.04% max
Sulphates -	0.05% max
Insoluables -	0.01% max
pH -	9-9.5

Packing : 50 Kg.HDPE bags

BORIC ACID

(Grannular, Powder)

H_3BO_3 -	99.5% min
Chlorides -	100 PPM max
Sulphates -	200 PPM max
Heavy Metals -	2 PPM max
Arsenic -	2 PPM max.
pH -	4.2 - 4.7

Packing : 25 Kgs. HDPE bags

030588 TV ADS

INDIAN BORAX

2. Anand Nagar Society, Jetalpur Road, BARODA 390 005.
Phone: 323985 Telex: 0175-423 Gram: INDIA BORAX

FOR YOUR REQUIREMENTS OF:

CAST IRON POWDER

Reduction Grades

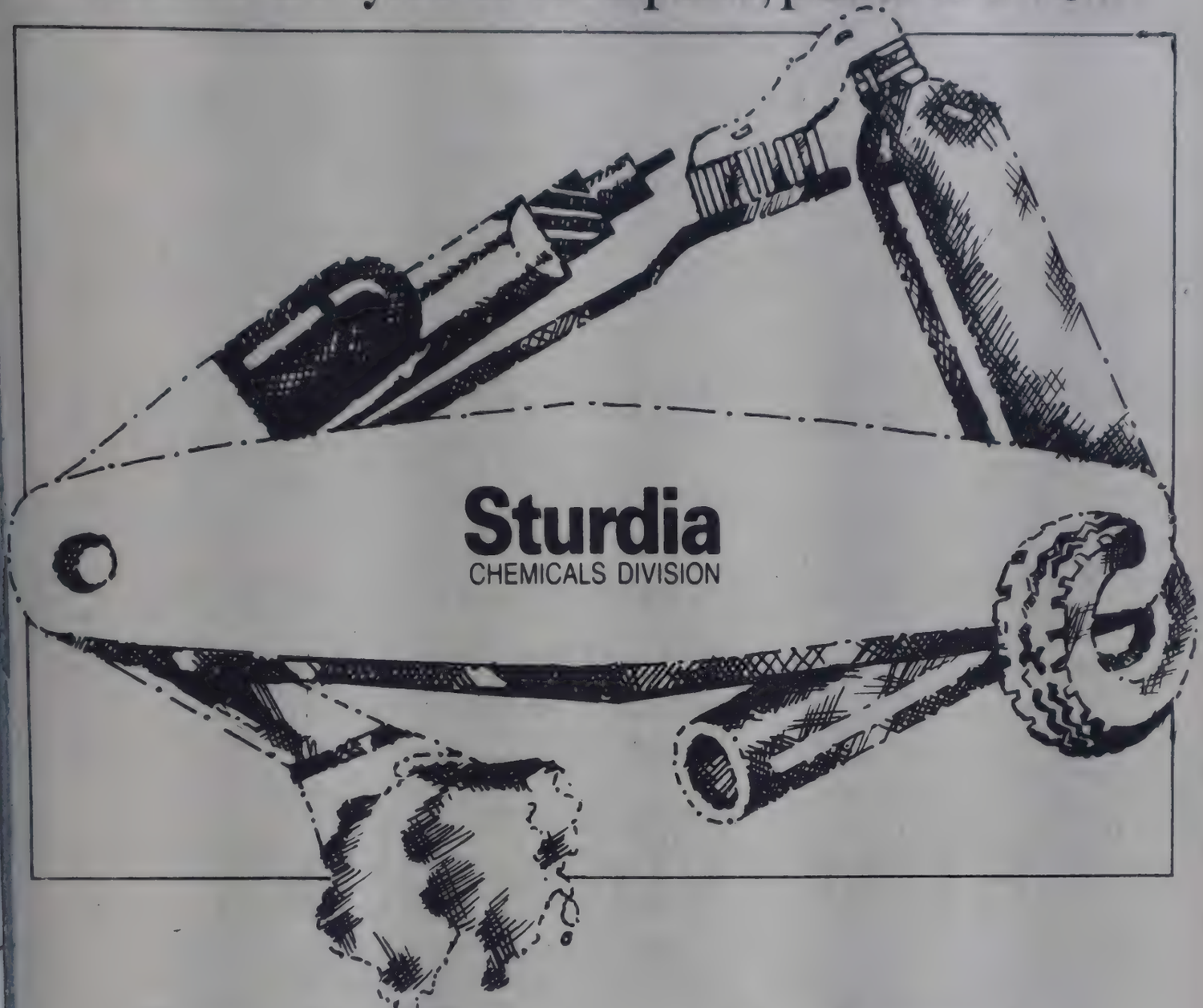
(from 10 to 250 Mesh)

Please Contact Manufacturers:

VIJAY POWDER PRODUCTS

Anil Metal Compound, Opp. Murlidhar Society,
Odhav Road, Odhav, Ahmedabad - 382 415
Phone: 886004

Whether it's tyres or toothpaste, paints or PVC...



Sturdia Calcium Carbonate
Quality is our cutting edge

Leading names in the industry will testify to the quality of Sturdia Calcium Carbonate.

As India's largest manufacturer, Sturdia meets the needs of industries ranging from cables, tyres, PVC pipes, rubber goods and paints to toothpaste, drugs, cosmetics and printing inks. The list continues to grow.

Sturdia has now introduced a new grade-Forcal 'C' which is being extensively used in the manufacture of rigid PVC pipes.

Sturdia
CHEMICALS DIVISION

CITURGIA BIOCHEMICALS LIMITED
Regd. Off: Neville House, J.N. Heredia Marg, Ballard Estate, Bombay 400 038 Tel: 268071
Gms: CITURGIA BOMBAY,

Tlx : 11-73372 BDM IN

Seasons A/CB/286 R

AVAILABLE FROM READY STOCK:

STEARIC ACID (All Grades) **GLYCERINE I.B./I.W.**
OLEIC ACID (All Grades) **FATTY ACIDS (All Types)**

Manufactured by: M/s. BOMBAY OIL INDUSTRIES PVT. LTD.
Also Available

FORMIC ACID [Imp.] HYDROGEN PEROXIDE
EMULSIFIER [All Grades] GLYCOLS [All Grades]

Contact:

GOODRICH CHEMICAL INDUSTRY
13, Nirmala Apartment, 1st Floor, Dr. R.P. Road, Mulund (West), Bombay-400 080.
Phones: Office: 338347/336940 Resi: 5612735 Gram: "RICHCHEM" Bombay-400 009

MANGANESE SULPHATE -- 98%
MONO HYDRATE
($MnSO_4 . H_2O$) --- Mn 32%

MANUFACTURERS
KUM INDUSTRIES
1009/2, VINOD BUILDING,
DEEP BUNGALOW CHOWK, PUNE - 411 016
PHONE: OFFICE: 53129 FACTORY: 84874

AMMONIA Gas
Liquor

Purity-99.5%
In Cylinders of 40 kg./50 kg.
AND ALSO
In Road Tankers

Sp. Gravity 0.910 & 0.888.
In Road Tankers, Drums & Carboys

Please Contact:
Jci *JAYSONS CHEMICAL INDUSTRIES*
SAKI VIHAR LAKE ROAD, POST BOX NO. 8968, SAKINAKA, BOMBAY - 400 072
Phones: 582704/589205/589208 **Grams: JAYSONS--Bombay-400 072**

261, Kandla Kashan Street,
Delhi-110 006
Phone: 235516
Gram: 'JAYCI'

BRANCHES
Plot No. 317/7, G.I.D.C.,
Vapi, Dist. Bulsar-396 195
Phone: 1689

18-A, Mai Krupa Society,
Old Channai, Highway Road,
Baroda
Phone: 22161

Quality That Abounds n Quantity.

ecipient of the following presitgious awards :
Sir P.C. Ray Award, 1985 of ICMA for
evelopment of indigenous technology.
ASIA Award, 1986 ● EUROPA Award, 1987

atronise DACL'S
thyleneamines.

thylenediamine (EDA)
iethylenetriamine (DETA)
riethylenetetramine (TETA)
etraethylenepentamine (TEPA)
igher Polyamines Mix (PA)
iperazine (PIP)

f International standards.

Diamines and Chemicals Limited

REG. OFFICE : In the premises of The Bharat Vijay Mills Ltd., Kalol (N.G.) 382 721.

AHMEDABAD : Head Office : 1, National Chambers, 2nd Floor, Ashram Road, Ahmedabad - 380 009. Phone : 409626. Gram : 'DIAMINES'

BARODA : Plot No. 13, P.O. Petrofils-391 347. Dist. Baroda, Phone : 73305. 73406. Gram : 'DIAMINES' Telex No. 0175-352 DACL IN

BOMBAY : Mittal Towers, 'C' Wing, 8th Floor, Nariman Point, Bombay 400 021. Phone : 232267 Gram : 'CELAGAR'.

NEW DELHI : M/s. Joshi & Associates, 20, Ansari Road, Darya Ganj, New Delhi - 110 002. Phone : 263502 Gram : MARTALUMIN

/DACL/4/87

Now Available Regularly

JAPAN LIKE QUALITY

ORTHO DIANISIDINE BASE

(Fast Blue B Base)

Export Enquiries Are Solicited

CONTACT:

Chemical Industrial Corporation

288, Samuel Street, Vadgadi, Bombay - 400 003
Phones: 322303 * 342754 * 322511

For Your Regular Requirement Of:

LITHIUM CARBONATE
LITHIUM CHLORIDE (Mono/Anhyd.)
SODIUM FORMALDEHYDE BI SULPHITE (Photo) grade
PHENYL HYDRAZIN HYDROCHLORIDE
SODIUM CYANATE
SODIUM POTASSIUM CYANATE
SODIUM SULPHITE -- SUPERFINE (Photo) grade
AMMONIUM THIOSULPHATE 60% (Photo) grade
SODIUM CARBONATE Mono/Anhydrous (Photo) grade
MEGALDRATE USP
COMPLEX CYANATES

Please contact authorised manufacturers Agent:

M/S. GAURAV ENTERPRISE

33, Sarvodaya Charity Trust Building, Gokhale Road (South), Dadar, BOMBAY - 400 028
Telephones: 4309513/4309597 Telegram: PUSHPACHEM--Bombay-28 **Telex: 011-2803 GAME IN**
In Baroda Contact: Mr. JAYESH H. SHAH, 307, Sitaram Apartments, Near Manusmruti Hospital, Ellora Park, Baroda - 390 007. **Phone: 322670.**

FOR YOUR REQUIREMENTS OF:

* **Reactive Turquoise Blue H5G, H7G, H2G**
* **Vinyl Sulphone Dyes--Turquoise Blue G**
* **Direct Turquoise Blue**
* **Navy Blue RX**
* **Reactive Turquoise Blue MG**

FOR EXPORT

CI BLUE--25
CI BLUE--21
CI BLUE--86

Contact Manufacturers:

At Bombay Office:

KUSUM DYE-CHEM INDUSTRIES

Office:
77/87, Abhechand Gandhi Marg,
Shreeji Krupa Building,
Room No. 21, 2nd floor, Bombay-400 003
Tel: 342466/324526, C/o. 345512; Resi: 5610860

Factory:
Plot No. 303/8/D, G.I.D.C., Vapi,
Dist. Bulsar, Gujarat, Pin-396 195

(Export enquiries also solicited)

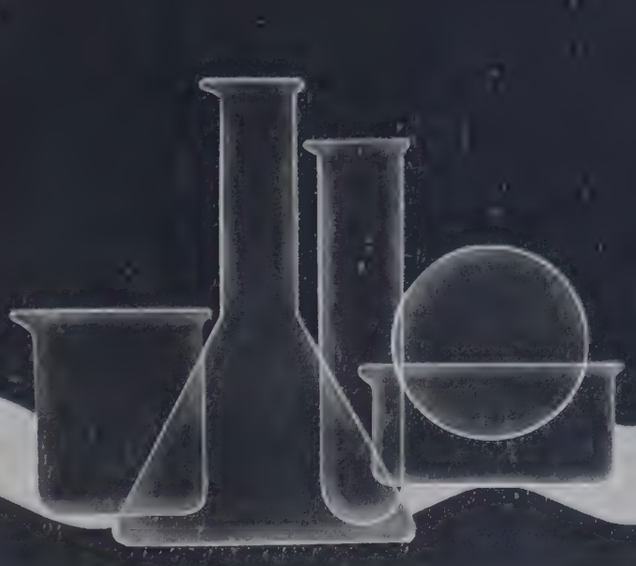
NOW AVAILABLE IN INDIA

MERCK

Extran®
MA 02 NEUTRAL

A unique laboratory cleaner for precision instruments of glass, quartz and sensitive metals.
Suitable for ultrasonic cleaning.

Packing: 500 ml & 5 ltrs



E. Merck (India) Limited
Shiv Sagar Estate 'A', Dr. Annie Besant Road
Worli, Bombay 400 018

BENZALDEHYDE
1:5 NAPTHALENE DI-SULPHONIC ACID
(AMSTRONG ACID)
PROPENYL -- GUAETHOL
TRICRESYL PHOSPHATE * CELLOSOLVE ACETATE
BENZYL ACETATE FFC * BENZYL ALCOHOL FFC

For Your Requirement Please Contact:

trade link

5/363, Mangaldas Building, Trikamji Ghia Marg, 2nd Floor, BOMBAY - 400 002.
Phone: 297718/259487; Resi.: 473310 **Gram: 'POLOSIGHT'** **TELEX: 4258 PTK IN**

FOR YOUR REQUIREMENTS OF:

Ammonia Gas
Ammonia Liquor

PURITY 99.5% IN CYLINDERS OF 40 & 50 KGS
ROAD TANKERS OF 5, 6, 7 M.T.

SPECIFIC GRAVITY 0.910 & 0.888 IN ROAD TANKERS, 7-9 M.T. DRUMS, CARBOYS & BOTTLES

Please Contact: **ASCO CHEMICAL COMPANY**

61, Bombay Talkies Compound, Post Box No. 17629, Malad (West), BOMBAY - 400 064.
Telephones: Off.: 6820151/6821667; Resi: 6265775. Grams: "PAGODA" Malad, Bombay-64
Factory: Plot No. 4, Mira Co-op. Industrial Estate, Mira, Dist. Thane. **Telephone: 663691**

And Also Available At Ankleshwar (Guj).

ANKLESHWAR AMMONIA SUPPLY CO.

Plot No. 6508, GIDC, Ankleshwar, Gujarat
Tele: C/o. 2828 -- ANKLESHWAR

FOR YOUR REGULAR REQUIREMENTS OF:

BON ACID
(Manufactured By : NEWPAR AROMATICS P. LTD.)

Please Contact:

P.D. SALES CORPORATION

206/A, Matru-Chhaya,
378/80, Narshi Natha Street, Bombay - 400 009
Phone: Off: 343314, 331864 **Res: VIRESH MEHTA 5617578**
PRADIP SHAH 5139539

WE ALSO OFFER

Alpha Naphthyl Amine **Meta Chloro Aniline**

WE OFFER

PHENOL, ORTHO CRESOL,
XYLENOL, MULTIVALENT PHENOL
META-PARA CRESOL
(N.L.C.).

*

HYDRO SULPHITE OF SODA
(T.C.P.L.)

*

TITANIUM DIOXIDE
(T.T.P. LTD.)

*

FORMIC ACID
(PERIYAR CHEMICALS)

*

PHTHALIC ANHYDRIDE
(THIRUMALAI)

*

PHOSPHORIC ACID
(STAR CHEMICALS)

*

PALEGAL S.F.
(BASF)

*

HYDROQUINONE
(ADITYA)

*

CAUSTIC SODA
(GACL)

*

SODA ASH
(GHCL)

also available

RICHLORO ETHYLENE, N-BUTANOL, MIBK
ACETONE, IPA, PVP K-30, GLYCERENE
ANGOLITE, PHENOL LIQUID, ISOBUTANOL
THYLENE CHLORIDE, TITANIUM (Rutil) RNCX
CAUSTIC SODA FLAKES, MEG
and other industrial solvents, acids, pigments, etc.

Please Contact:

RAMNIKLAL S. GOSALIA
Admn. Office:
8/310, Parshva Chambers, 17/21, Issaji Street,
Vadgadi, Bombay - 400 003.
Telephone: 327314, 327324, 345505
able: NEWLUCKY; Telex: 11-76882 RSG IN
Associates:
agoya Pvt. Ltd. * Gosalia Brothers * Yojit Enterprise
United Enterprise * General Trades Corporation

MANUFACTURERS OF
ACID MILLING DYES

RED RS * RED G * RED GRS * RED 3BN *
PINK R * RED F2R * MAROON V *
NAVYBLUE- S5R * YELLOW 5GN *
YELLOW M * YELLOW N4GN *
GOLDEN YELLOW N2M *
METAL COMPLEX BLACK WA &
DIRECT DYES

chromill colour industries

CHROMILL
COLOUR
INDUSTRIES

INTERMEDIATES
for
DYES Manufacturers

2:5 DICHLORO 1:4 SULFOPHENYL
3 METHYL 5 PYRAZOLONE *
1:4 SULFOPHENYL 3 METHYL 5 PYROZOLONE *
G-SALT * EBA METASULFONIC ACID. *
PARA AMINO AZO BEZENE SULPHONIC ACID *

SHIDIMO
INTERAUX
PVT. LTD.

Office: 901-902, Adatia Awas, Bombay Market,
Umarwada, SURAT 395 010.
Gram: CHROMILL
Phone. 44438, 43758

Factory S No · 245, LAJPORE. 394 235
Via Sachin Dist. Surat.
Phone. 60, 61.

Export Inquiries Solicited.

FOR YOUR REGULAR REQUIREMENTS OF:

Sodium Penta Chloro Phenate

(Santobrite)

Cuprous Chloride 98%

Manufactured by: M/s. SAGGITAR & DEMOR

Contact: STOCKISTS

MEHTA BROTHERS

Regd. Office:
1/3, Vallabh Nivas, Malaviya Road
Vile Parle (East)
Bombay 400 057
Phone: 6140649

Sales Office:
16/18, Daryasthan Street,
1st Floor, R. No. 14,
Bombay 400 003.
Phone: 337288

PETROLEUM ETHER (L.R./A.R.)

40-60° / 60-80° / 60-95° / 80-100° / 80-120° / 85-105° / 95-110° / 100-120°

n-HEXANE (65-70°) **n-HEPTANE (90-100°)**

EMULSIFYING WAX

Cyclohexane LR
Ethyl Butyrate
Amyl Butyrate
Xylene 138°-142° (Rectified -- Sulphur Free)
Methyl Acetate 98%
Iso Amyl Acetate (Perfumery Grade
Schaeffer's Acid (As Sodium Salt)
Toluene (Sulphur Free)

Contact Manufacturers:

STERLING ORGO & INORGO CHEMICAL PVT. LTD.

Plot AF-1. Cama Industrial Estate, Walbhat Road, Goregaon (East),
BOMBAY - 400 063. **Phone: 699458/6884593**

VIJAY MECHANICAL & PACKING WORKS

MOULDERS & FABRICATORS OF P.T.F.E-TEFLON —FLUON
Expansion Bellow, Valve Bellow Gasket, Creascent Ring, Stirrer
Bellow o-Ring, V-Ring Gland Packing

OFFICE : Building No. 174/5905,
Kannamwar Nagar No.1, Vikhroli, (E)
Bombay -400 083. Phone : 58 29 69

WORKS : Shed No. W-9 (A) M.I.D.C.
Murbad, Near Kalyan
Dist.: THANA

DIRECT IMPORTERS & STOCKISTS OF:

POLY VINYL ALCOHOL

HOT GRADE -- POLYSIZER 173/BF--17
COLD GRADE -- GOHSENOL GH--17/BP-20/BP--17/BP--24/GL--05/BP--05

Acrylamide--Japan
Acrylic Acid--Japan
Hydroxy Ethyl Cellulose
Natrosol 250 LR/GR/HBR Hercules Make
2 Ethyl Hexyl Acrylate
Butyl Acrylate
P.T.B.P.
Titanium Dioxide
Hydrogen Peroxide 50%
Emulsifier Polyethylene Wax
Poly Vinyl Acetate Emulsion
M.E.K.

Please Contact:

HEAVY CHEMICALS CORPORATION

43, V.V. Chandan Street, (D'Souza Street), 1st Floor, Off Masjid Bunder Road,
Bombay-400 003. **Phones: 327973/348148**

FOR YOUR REQUIREMENTS OF:

ACETONITRILE
ALUMINIUM CHLORIDE CRY.
AMMONIUM BIFLUORIDE
AMMONIUM ACETATE
ALLYL ALCOHOL/CHLORIDE
BENZYL ALCOHOL
BARIUM PEROXIDE
B.H.A./B.H.T.
CELLOSOLVE/CELLOSOLVE ACETATE
CYCLOHEXYLAMINE
CALCIUM PROPIONATE
CYCLOHEXANE
CARBON DISULPHIDE
CHLORHEXIDINE GLUCONATE
D.O.S.S.
D.M.S.O.
DI METHYL ACETAMIDE
ETHER SOLVENT I.P./COMM.
ETHYLENE GLYCOLS (MONO, DI, TRI, HEXA i.e. HEXYLENE GLYCOL)
ETHYL AMINES (MONO, DI, TRI)
HYDRO FLUORIC ACID
ISO PROPYL AMINE 99%
IRON POWDER
ISO PROPYL ETHER
ISO PROPYL MYRISTATE/PALMITATE
LITHIUM CARBONATE/HYDROXIDE
MAGNESIUM OXIDE/CARBONATE
NITRO METHANE
PINE OIL
SOD. DIETHYL DITHIO CARBAMATE
SODIUM SULPHIDE FLAKES (TCC)
SORBIC AC D
TERT BUTYL ALCOHOL
THIOGLYCOLIC ACID
TITANIUM TETRA CHLORIDE

Also available many other Chemicals in small packing, Please Contact:

HARIBHAI JEEBHAI & CO.

22, S. Gandhi Marg, (Princess Street), Bombay 400 002.
Tel. 312116, 254950, 253945, 259131; Resi: 578472, 571834. Telex: C/o. 011-3185 ABC IN
Please visit our Stall at LABEXPO 88 at Nehru Centre from 16th to 20th June 1988.

For Your Small & Bulk Requirements Of:

Morpholine * Phosphorous Trichloride
Phosphorous pentoxide * Phosphorous Oxychloride
Mono Ethanolamine * Tri Ethanolamine * Diethanolamine

PLEASE CONTACT:
S.I. CHEMICALS & TRADING CO. PVT. LTD.
65, Bombay Samachar Marg, Sonawala Building, 2nd Floor, Bombay - 400 023
Phone: 286 34 18, 286 12 36. Cable "SICORPOBOM" Telex: 11-5028 CHEM - IN

AVAILABLE AT MOST COMPETITIVE RATES
ACID SLURRY
SOFT AND HARD ANY QUANTITY

KRIPA CHEMICALS PVT. LTD.

Admn. Office:
8/9/10, 'Royal Chambers',
S.No.47, Paud Rd., PUNE-411 038
Phone: 433245

Branch Office:
House No. 1024, 10th Main Road,
West of Chord Road,
IIIrd Stage, 1st Block, BANGALORE-560 079

For most competitive quotation, best quality, prompt delivery
and after-sales service for following items

EUGENOL
CLOVE OIL (Rectified)
CLOVE OIL (Pharma Grade)
CINNAMON OIL
LEMON OIL
ORANGE OIL
FOLDED OILS

Please Contact Manufacturers:
CHEMICAL PROCESS CONSULTANTS
Unit 202, Adarsh Ind. Estate, Sahar Road, Chakala, Andheri (East),
BOMBAY - 400 099
Tel: 632 5855 **Gram: KEMIPROSS**

FOR YOUR EVERY NEED OF QUALITY

ENZYMES & BIOCHEMICALS

* FUNGAL DIASTASE (ALL ACTIVITIES)
* PEPSIN IP/BP & HIGH ACTIVITIES
* PAPAIN BP/IP PURIFIED
* PANCREATIN IP/4NF/8NF
* HEMOGLOBIN POWDER
* TRYPSIN - CHYMOTRYPSIN
* LYSOZYME
* LACTOFERRIN
* LACTOBACILLUS ACIDUPHILUS
* HEPARIN SODIUM
* OX BILE EXTRACT
* DEOXYCHOLIC ACID
* INSULIN - BOVINE (MONO COMPONENT)
* APROTININ
* BOVINE ALBUMIN
* DIAGNOSTIC ENZYMES

& MANY MORE

We also offer comprehensive consultancy in Enzymes free of Charge.

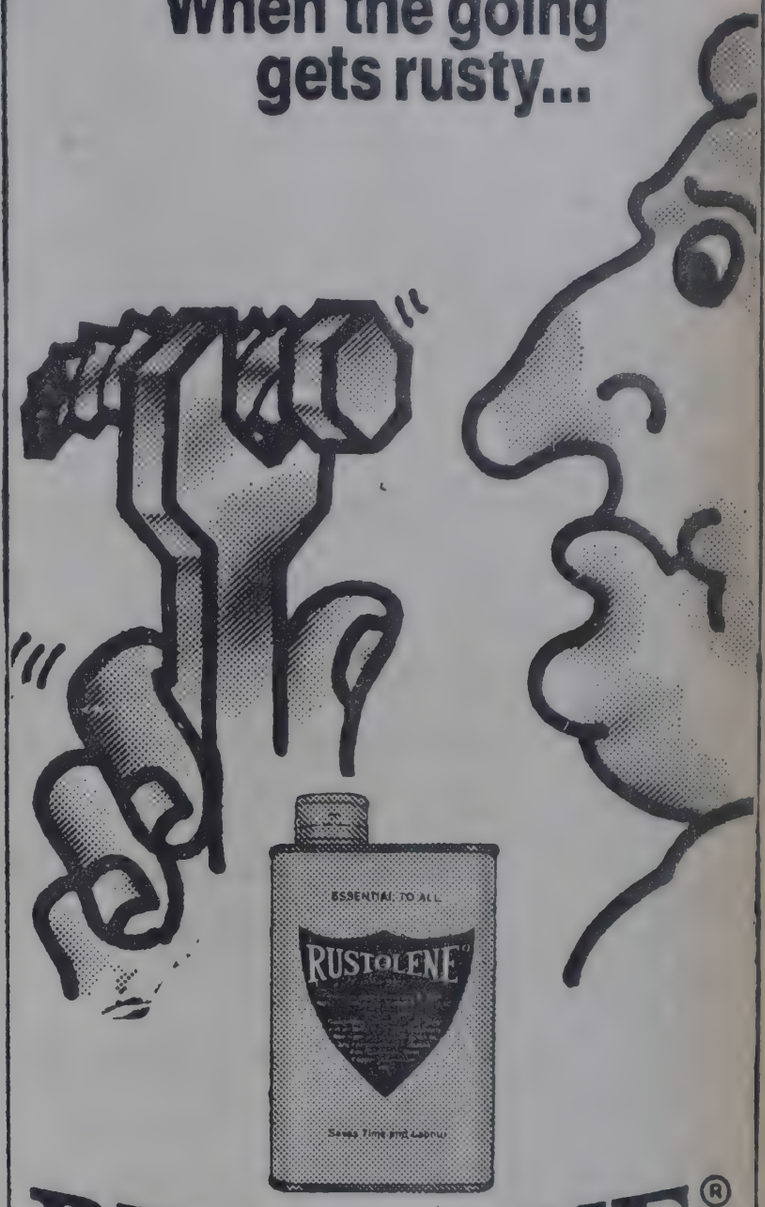
All products from world's leading producers

Contact:

Rathi
PAPAINS PVT. LTD.

Flat No. 1, Bldg. 41A, Brindaban Society,
THANA (w) - 400 601
Phone: 503445 * Telex: 011-2844
Cable: PAPAINS, Thana (W).

When the going gets rusty...



RUSTOLENE®

gets it going.

From a small cog to a mammoth machine — anything that is rusted needs Rustolene.

Rustolene gets rid of rust so simply. Just apply it wherever necessary, leave it for a while... and watch the rust disintegrate.

Rustolene.
The wonder solution that destroys rust anywhere.

HAWCO

Hardcastle & Waud Manufacturing Co. Ltd.
Brabourne Stadium, 87, Veer Nariman Road,
Bombay-400 020. Tel.: 222114

CHAITRA-B HAWCO2

TMC

Transmare-Chemie

Chemicals Regularly Supplied to Industry and Trade

N-Butanol/Iso Butanol
N-Butyl Acetate/Iso-Butyl Acetate
Cyclohexanone
Dibutyl Maleate/Dioctyl Maleate
Ethyl Acetate
MIK/MIBK
N-Propanol/Iso-Propanol
Solvent Naphtha, Light and Heavy
Other Organic/Inorganic Chemicals

CHIKA

CHIKA LIMITED

Mehta Chambers, 13, Mathew Road, Bombay-400 004.
Phone : 8113456/1457 Cable: "DYECOLD" Telex: 11 75562 and 11 75534
Branches :
AHMEDABAD : Ashram Road, CALCUTTA : 36 Ganesh Chandra Avenue
MADRAS : 122 Mount Road, NEW DELHI : 25/1 Asaf Ali Road

CHEMICAL WEEKLY

VOL. XXXIII JUNE 21, 1988 NO. 41

Material Science and Energy Systems

A massive R & D effort has been launched in the United States directed to the development of new alloys to achieve improved rgy extraction efficiencies from the currently available energy tems. The major objectives are --

o acquire the technology base necessary to exploit the vast coal resources of the country;
o improve the efficiency and safety of the existing light water reactor system;
develop nonconventional and renewable sources of energy and provide pollution control devices that are essential to make these systems environmentally acceptable.

Modified austentic stainless steels are being optimised for use he first wall structures for magnetically confined fusion systems. search is on for alternate alloys having better combination mperature capability and radiation resistance. Such alternates include iron-chromium nickel superalloy, reactive and refrac- metals and alloys and new concepts such as iron base and alt base long-range-ordered alloys, rapidly solidifying alloys, posites and ceramics.

Vanadium alloys look particularly attractive as an alternative to ntentic steels, because of their low neutron activation, temper- e resistance and resistance to helium embrittlement. Intense arch activity is being focussed on structural steels with reduced ceptibility to hydrogen embrittlement and large pressure ves- for second generation coal conversion systems. Improved wear stant materials and coatings for coal conversion systems, coal y pipelines, geothermal drilling tools and direct cycle gas tur- components and heat exchangers are on the anvil.

he manufacture of Special alloys which will withstand the cor- e attack of coal liquids, Magneto-Hydrodynamic (MHD) Seed very process, processing of petroleum fuels which contain adium, sodium and sulphur impurities, geothermal fluids, molten heat transfer and storage media fluids from solar conversion ems, are being programmed.

morphous "glassy" metals solidified at rates 10^5 - 10^6 degrees second into strips several centimeters wide will increasingly replace iron-silicon alloy steels in the electric power transformance. Low cost, efficient household power transformers will become widespread owing to this technology. Cobalt-Samarium alloys and ceramic ferrites will be displaced by the new rare earth magnetic alloys that have higher magnetic energy capacities and lower costs.

For some electrical transmission systems, metal conducting cables may be replaced by light weight and stronger cables based on intercolated graphite. Among the superconductors, Niobicum-Titanium (NbTc) alloy is the only truly superconductor today, which could be extended in use for magnets from 8 to 12 Telsa with further optimisation. However Nb_3Sn (an intermetallic compound) holds the greatest promise for producing magnetic fields from 12 to 15 Tels. Higher magnetic fields will require new options involving Vanadium and Gallium and Niobicum and Germanium. Such high field materials will require several more years of development to bring them to the manufacturing stage.

The future of high technology ceramics in energy systems is extremely bright. In addition to advanced heat engine applications a variety of insulators and structural ceramics will be required in fusion reactors, insulators required for radio frequency heating system and magnetic coils. Other critical applications for high technology ceramics, will include refractory liners for coal gasifiers, MHD electrodes inter-electrode, insulators, air preheater refractories, thermal barrier coatings for gas turbine and dual engine combustion and zone components.

Special glasses are under development for inertially confined fusion systems including laser amplifiers, Faraday rotators, laser windows, open low density, open lattice structures for dentrium and tritium containment of glasses will be as waste packaging material for the long term confinement of nuclear washers.

Polymers and epoxy systems are expected to find most extensive application in active and passive solar collector systems. Special polymer films will be used as metallized reflectors, selective absorbing laminated sheets and Fresnel lenses. Fresnel lenses consist of a concentric series of relatively small section of mirrors or prisms, making the thin lens with a short focal length and large diameter found in beam projectors.

Polymer structural forms and piping are already being used for home and building solar collectors. Active polymers will also find uses as electrolytes for producing hydrogen in the electrolysis and photolysis of water and as low cost photo voltaic semiconductors and optical circuit components. Polymers and polymer composits find applications for use in gas centrifuge rotors for uranium isotope separation, polymer concrete pipes for use in the completion of geothermal well and fluorocarbon elastomer for seals and logging cable insulator in low temperature geothermal wells.

The growth rate of solar energy semiconductor industries will probably depend more on oil and gas price increase, and the rate at which the US economy shifts away from oil and gas to a broader range of energy options in the coming decades.

The cost of producing solar cells from gallium arsenide for direct steam production from solar concentrators should drop significantly over the next ten years owing to the higher volume of production for the electronic industry. Developments will continue towards demonstrating the feasibility of emerging photovoltaic materials like zinc phosphide, cadmium telluride, tungsten diselenide for high efficiency, multijunction concentrator cells.

Governments of highly developed countries like Japan are concentrating over promoting cooperative research programmes with industry on semiconductors, carbon fibre advanced polymer, biomaterial and high technology ceramics. Japan will continue to be well ahead of the United States in specific material technologies. Japan is the world leader today in the production of ceramic chip carriers for micro-electronic circuits and in the application of ceramics for cutting tools, automotive engines and biomedical implants.

Japan has also become a dominant technological leader in high quality semiconductors, synthetic gems, carbon fibres and speciality steel. Other nations competing for the world market **(England, France and West Germany)** are finding ways to use new technology as a competetive force to retain their position. One main factor serving as the driving force behind the massive US/Japanese R & D efforts is their anxiety to make up indigenously the short fall in their defence stockpile requirements, likely to arise in the event of another major world war.

Some of the major considerations are:

i) The high percentage import reliance of the United States for chromium, cobalt, tantalum, Columbium and platinum group metals which will continue until the turn of the century and beyond.

ii) The demand for these materials will increase at an annual rate of 2-3%.

iii) Domestic mine production, scrap recycling and secondary recovery of tailings will probably supply only 10-13% of the US demand.

iv) In the unseen, behind the scene resource war that has been going on since the second World War, the Soviet Union is in a position of advantage with regard to platinum group meta vanadium, manganese and chromium.

v) No dramatic technological breakthrough can be relied upor the mining and utilisation of manganese nodules and polys fide from the ocean bed.

vi) A review of strategic stockpile in the United States, confirm the widely held belief that its current composition is align neither to current technology nor future national need.

The current status of these defence oriented R & D efforts m be summarized as under:

1. The Burea of Mines is exploring a series of iron-base allo that use molybdenum, titanium, aluminum and silicon additions place of chromium for applications, requiring high temperature, c dation resistant performances. One such alloy containing, m ganese, silicon and copper is being used as a replacement chromium bearing spring steels.

2. Rapid solidification technology looks particularly promising improving surface hardness and corrosion resistance through h ogenisation and microstructural refinement. An iron-aluminium a containing firmly dispersed titanium diboride phase has alre been commercially introduced. DOD is actively pursuing a var of rapid solidification technologies to develop new alloys that permit reduced use of chromium and cobalt.

3. Near-net shape technologies are already providing dram improvements in chromium conservation through reduced sc generation and recycling. Dramatic savings in chromium use already being realised in the use of hot die, super plastic forgi to reduce grinding and machining losses in the case of jet-eng discs, alloy bearings, tools and dies.

4. The automotive industry is replacing chromium in various a motive parts to the extent of 3 lbs. out of the previous consu tion of 5 lbs. per vehicle with the proposed development of strat charge diesel engines, approximately 2 lbs. of chromium curre used for catalytic converter could be eliminated.

5. The use of lead free gasolines, has made possible the us cobalt free systems for the hard facing coatings of engine exh valves.

These developments have arisen out of political and military siderations. Developing countries and especially those with uable mineral and energy resources will increasingly look to emerging material technologies to improve the quality of life of t people. These countries are primarily interested in technolo know-how and capital investments in existing material proces and manufacturing technologies for their economic progress. T success in the upliftment of the masses will depend on the ex to which the United States and Japan are willing to permit the u privileged nations, the fruits of their researches.

-- T.P.S. RA

CHEMARENA

S.L. VENKITESWARAN

Hydrogen Peroxide -- A Major Innovation

What is claimed as a major breakthrough in the process for making hydrogen peroxide has been claimed by Du Pont, USA. This is likely to be more advantageous than the alkyl anthraquinone route of indirect generation -- autoxidation by air of reduced alkyl anthraquinone in a solvent followed by water extraction/purification/concentration. The alkyl anthraquinone is reduced by hydrogen separately to recycle the reduced product. By contrast the Du Pont process is said to be direct reaction between Hydrogen and Oxygen under high pressure in the presence of catalyst palladium on carbon. This reaction is an achievement, for hydrogen and oxygen normally combine to form water. The conditions are said to be critical at perhaps -- 10°C and 500 to 2500 psi. The high pressure results is nearly double the concentration of the aqueous extract of the autoxidation process. The elimination of the separate cycles of oxidation and hydrogenation of solvent, reduces capital costs and also operating costs substantially. Smaller capacity plants are viable say at 6000 to 7000 tpa. But vital factor would still be the source and cost of hydrogen. The cost of oxygen is relatively lower and may not be the decisive factor. The capacity and production in USA and Canada are:

Company	Location	Quantity
Degussa	Theodore AL, USA	80 Mil. lbs
Du Pont	Woodstock, TM, USA	125 "
FMC	Springhill WV, USA	85 "
	Bayport, TX, USA	95 "
Interox	Deerpark, TX, USA	110 "
Du Pont	Maitland, Ont, Canada	80 "
Laxychem	Quebec, Canada	44 "

Presently Du Pont operates the autoxidation system and it is not clear as to when they will go ahead with their new process on a commercial scale. Their Canadian plant is a very recent one at a cost of $ 79 million (Canadian). Degussa have made their entry into USA only now though they are the third largest in the world after Interox and FMC.

Since 1982 growth of USA/Canadian market has averaged 8 to 9% and this is expected to continue. The operation level is said to be only 80% due to various factors and on this reckoning the present US/Canada demand is 70% of installed capacities at near 400 million lbs. The biggest use is in paper and pulp applications -- expected to reach 160 million lbs. by early 1990s. The area wise use of hydrogen peroxide in this North American region of US/Canada is estimated at:

Pulp/paper	--	30%
Chemicals	--	22%
Textiles	--	18%
Environmental	--	17%
Specialities	--	9%
Miscellaneous	--	4%

In the case of textiles the resurgence in the use of cotton has given it a boost -- US use of cotton has risen by 50% since 1980. An emerging use is for detoxifying cyanide in gold extraction and in oxidising SO_2 in flue gases to recover as sulfuric acid.

India has for long been at the mercy of a single producer and new producers are expected before the end of this decade but on the autoxidation system.

Aspirin Headaches

(***Chem. Business,*** April 1988)

Recently, the aspirin (acetyl salicylic acid) the pain reliever par excellence of many decades ran into heavy weather on the reported effects on sensitive stomach linings with possibility of internal bleeding and possible connection with Reye's Syndrome -- an extremely rare disease of children under 15 years. This Reye's Syndrome attacks children who have a garden variety flu or chicken pox and were given aspirin. The findings came in handy for rival analgesics to advance their market share and cut into aspirin's dominance. But traditionally aspirin is formulated with an antacid and the effect on stomach linings is fully taken care of. One of

the first formulations was named "bufferin" to emphasise the buffering materials of the formulation.

But a recent study has once again highlighted the added benefits of aspirin -- a tablet of 325 mg. every alternate day halves the risk of heart attacks. This finding of the National Institute of Health study has provided ammunition for the aspirin makers to launch a counter offensive.

Perhaps too much emphasis in the media has led NIH to ask the makers to tone down their claims. Sterling Drug went to the extent of introducing "Calender Paks" of Bayer aspirin for a 28 day supply aimed at the middle aged sector of the population.

Aspirin's share of the analgesic market estimated a $118 billion which fell to 44.1% from 58.9% (of 1983 but is picking up. The rivals are paracetamol of John son & Johnson (whose tylenol was laced with cyanid and many deaths leading to withdrawal of whole lots with 32% share and the Ibuprofen and related propi onic acid group with about 20% market. Ibuprofen wa given approval of OTC salts for Advil of America Hom Products recently. Dow Chemical is top in aspirin wit a reported 5000 tonnes and Monsanto the number tw with total US capacity being 16000 tonnes. It is claime that 100,000 heart attacks can be avoided by this simpl prescription of an aspirin every alternate day. It is to b seen how much of the lost share can be picked up b Aspirin which is the cheapest of pain relievers.

Sunken Aircraft in Loch Ness

Loch Ness in Scotland is famous for harbouring a monster which is always elusive like the abominable snowman of the Himalayas. But the World War II seems to have resulted in a shot-down aircraft sinking into its depth and remaining unnoticed until recently when investigations seeking the marine monster by sonar stumbled upon the shape of an aircraft -- an intact Wellington bomber under 70 metres of water.

This was hauled up in 1985 and according to a news item in *C.E. News* of 21st March, has attracted attention of the Malaysian Rubber Producers Research Association in England. Their interest is in the condition of rubber under these circumstances of pressure and water. The aircraft as per markings was built in 193 and disappeared at the end of 1940 in a snowstor when on a training mission. All the trainees baled o and the aircraft was ditched into Loch Ness by the pil who escaped from it before it sank.

The natural rubber components of the aircraft hav held up in the 44 years under water and it appears or of the tyres was still inflated when the aircraft was haule up. The rubber maintained its flexibility and the rubbe ised canvas, self sealing gastanks etc. had their elas properties. A real good point for natural rubber. The a craft itself is being assembled intact for placement ir museum as the only surviving aircraft of this type.

Cain Chemicals ends up in Occidental's Lap

Cain Chemicals ended its one year old existence by the takeover by Occidental Petroleum for a reported $2.2 billion. This is a dream reward for the very enterprising technocrats who organised Cain Chemicals through takeovers beginning with the discarded chemicals of Du Pont -- Conoco merger under the name of Vista Chemicals a few years ago through bank loans or what is termed LBO -- Leveraged Buyout. Soon after, other buyovers started and Sterling Chemical was built up from Du Pont, PPG Industries, ICI and others at critical times when commodity chemicals were frowned upon and the divestitures were available at bargain prices. The fortunes of commodity chemicals shot up soon after and Cain and Sterling reached sales of over $1.5 billion with ethylene, propylene, butadiene, benzene, HDPE, ethylene glycols and derivatives. Gordon Cain, the primem over of Cain Chemicals is said to have gained $100 million on his original investment of $3 million while most of the employers who had stocks became millionaires too.

Occidental Chemicals has built up also through acq sitions. Prior to 1983, Occichem owned Hooker Che ical and a PVC and phenolic resins plant only. It h acquired Firestone's PVC business and later went in a big way in PVC with integration of its own lar chlorine production through takeover of PVC from D mond Shamrock and Tenneco. It has also acquire large chloralkali plant of Du Pont and a Shell vinyl ch ride plant. Over five years, Occichem sales doubled $3 billion and Cain Chemicals adds another $1.5 bill and boosts it to the Sixth place among chemical p ducers in USA. Cain's acquisition gives it ethylene s plies for captive use.

The parent company Occidental Petroleum has turnover of $19 billion. Occichem will be one of the la est in PVC and probably the second in ethylene glyc To further integrate operations a new 800 million EDC plant is being added. HDPE business is a g addition to the PVC business.

For Competitive Imports of Chemicals, Pharmaceuticals

Raw Materials and Particularly for the Following Items

Mono Sodium Glutamate
Acrylonitrile
Dimethyl Sulphoxide
Hydroxylamine Sulphate
Adipic Acid
Cyanuric Acid
Propionic Acid
Propionic Anhydride

PLEASE CONTACT WITH YOUR SPECIFIC REQUIREMENTS

CHEMET

HEAD OFFICE :
Taj Building, 1st Floor, P. B. No. 195,
210, Dr. D. N. Road, Bombay-400 001.
Phones : 2043803/4/5/6/7
Fac. No. 2048854
Cable : DEGUCHEM Bombay
Telex : 11 3229/11 4631 DGKM IN

CALCUTTA OFFICE :
Sharma House, 3rd Floor,
1/2, Lord Sinha Road, Calcutta-700 071.
Phones : 447306/446155
Cable : DEGUCHEM Calcutta
Telex : 21 3325 DGKN IN

MADRAS OFFICE :
10, Kondy Chetty Street, 1st Floor,
P. B. No. 1709, Madras-600 001.
Phones :582447/587617
Cable : DEGUCHEM Madras
Telex : 41 7554 DGKM IN

DELHI OFFICE :
214, Hans Bhavan, Wing No. 1,
Bahadurshah Zafer Marg, New Delhi-110 002
Phones : 3311373/3319787/3319791
Cable : DEGUCHEM New Delhi
Telex : 31 65921 DGKM IN

Hyderabad Office: II Flr., 3-4-874/1/A/7, P.B. No. 1262 Barkatpura, Hyderabad-27.

Rama Petrochem's Methanol plant goes on stream

The Rs. 36 crores Rama Petrochemicals methanol plant at Patalganga (Maharashtra) had gone on stream in mid April. The 50,000 TPA, most modernised plant, has already produced and delivered Rs. 5 crores worth of methanol of 99.9% purity.

Disclosing these at a press conference on 10th June, Mr. P. I Firasta, Financial Director of Rama Petrochemicals P. Ltd., informed the press that the company has also plans to double the capacity (ie. 1,00,000 TPA) in the near future. He said that Rama Chem's was the only plant to produce methanol of very hign purity in India. Since the plant is located at a declared backward area, sales and tax benefits will be available. And also the recently announced investment allowance benefit under Income Tax — would further help the company, he said.

Methanol is a vital industrial product with multi end uses, and very much in demand in diverse industries ranging from — DMT, drugs, pesticides, formaldehyde, fertilizers and the manufacture of several other chemicals, covering a demand of 1,70,000 tonnes per annum. Against this, India is manufacturing only 1,20,000 tonnes per annum, which results in a deficit of 50,000 tonnes which had to be imported at a massive foreign exchange expenditure of Rs. 15-17 crores. This deficit will be covered by Rama Petrochemicals who, since April 1988, have gone into full stream production of this petrochemical and will be manufacturing 50,000 tonnes of high purity Methanol. The plant is the biggest of its kind in India, manufacturing Methanol of 99.9% purity, a level unparalelled by any other manufacturer in the country so far. The Company's product is well accepted by the consuming industries. The main consumers of the products are Bombay Dyeing, Hindustan Organic Chemicals, Ciba-Atul, Pentasia, Indian Dyestuff Industries, IPCL, Konkan Chemicals, Western India Chemicals, Aegis Chemicals, Hindustan Ciba-Geigy, etc.

TURNING METHANOL SCARCITY INTO SELF-SUFFICIENCY

With the commissioning of this plant at Patalganga, not only will the country be independent of Methanol imports, but with Rama's proposed rates of expansion, will adequately meet the future demand. The plant is advantageously located at Patalganga in close proximity to the consuming market, as well as for procurement basic raw material, naphtha, wh results in reduction of transportat and distribution cost.

The plant is fully automated process efficiency is monitored fr a central control room. A high deg of Methanol purity is assured by ad ting the latest low pressure techno gy of Lurgi GmBH, West Germa The plant has a feedstock flexibi of using either Naphtha or Natu Gas. The 'Zero Power Concept' minates the need for external po by the process plant which has a t benefit of containing production c as also conserving energy.

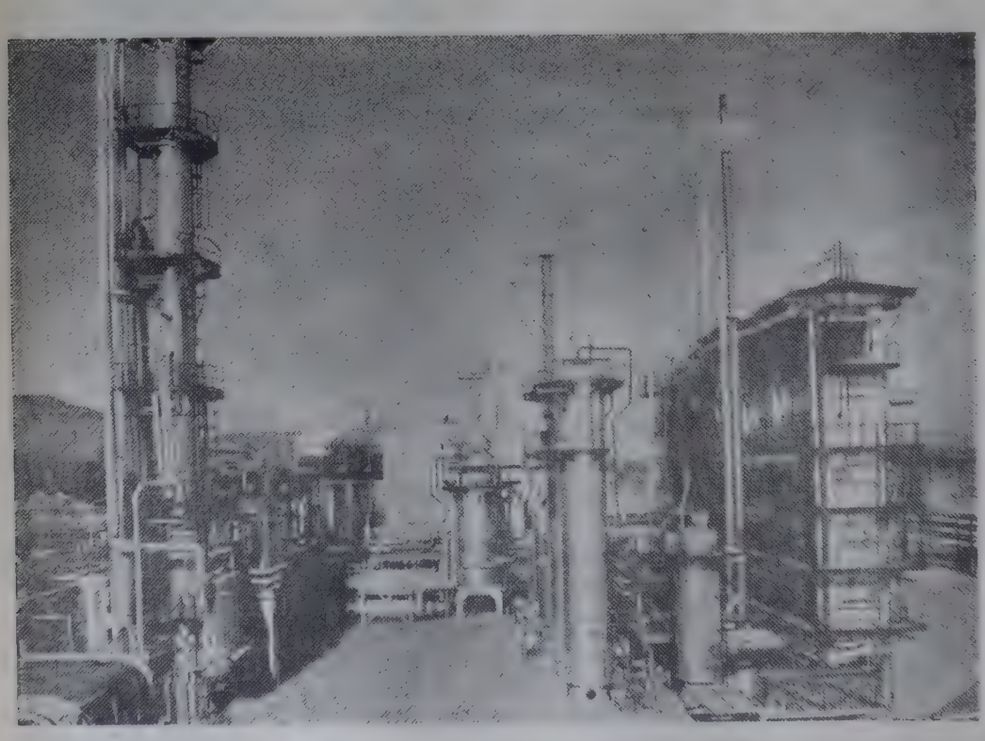
State-of-the-art technology fr Aktiengesellschaft Kuhnle, Kopp Kausch of West Germany and Nu Pignone of Italy, has been marshal for the project which has been imp mented under the close supervision Humphreys & Glasgow Consulta Pvt. Ltd. The staff has been speci trained in West Germany and Italy handle precision jobs and operati of the Lurgi Reactro Process St gent quality control is maintained periodic tests at each stage of prod tion, in the fully equipped laborat Sophisticated test equipments like Chromatographs, Atomic Absorpt Spectrophotometers, Karl Fisch etc., are used to ensure quality of ternational standard. A well desig effluent system keeps pollution at while the treated effluents are conv ted to fertilise High Density Agro estry.

FUTURE GROWTH

The Company is holding re-enc sed licence capacity of 1,00,000 T to produce Methanol. Plans are a to expand the capacity. The Comp has further identified the downstre projects to diversify into related fie

THE RAMA GROUP

Rama Petrochemicals Ltd. is pron ted by the Rama Group of Compan which is an NRI group. The Ra Group has widespread activities in verse fields like pulp and paper, fe lizers, chemicals and transporta and have promoted several ambiti projects in the recent past, the m notable ones being Rama Petroche cals, Rama Phosphates Ltd. Rama widespread business interests in t the USA and in the Middle East.



Rama Petrochem's Methanol Plant

For Your Local Requirement

Of

UNSATURATED POLYESTER RESIN

Based on

ORTHOPHTHALIC (G.P.)
ISOPHTHALIC
BISPHENOLIC
VINYL ESTER
FIRE RETARDANT (ORTHO/ISO)

Also available

CHLORINATED PARAFFIN WAX
(Secondary Plasticizer)

And PVC Master Batches

CONTACT :

Uphar Projects Limited

BOMBAY :
Podar Chambers, 4th Floor,
109, S.A. Brelvi Road, Fort,
BOMBAY-400 001.
TEL. : 2863611/2863900/
286376/2864026/2860596.
TLX. : 11-5495 PRIA IN
11-6556 PRIA IN
11-2472 PODR IN

DELHI :
FLAT NO. 8, 10TH FLOOR,
1008, AKASH DEEP BUILDING,
BARAKHAMBA ROAD,
NEW DELHI-110 001.
TEL. : 3310413/3314512
TLX. : 31-65072 PRIA IN.

CALCUTTA :
8, LYONS RANGE,
CALCUTTA-700 001.
TEL. : 200399/202571/
209853/204017
TLX. : 21-2605 PRIA IN.

MADRAS :
MANIKESHWARI ROAD,
KILPAUK,
MADRAS-600 010.
TEL. : 663632/661852.
TLX. : 41-7285 PRIA IN.

BANGALORE :
DEVATA PLAZA,
D-6, 2ND FLOOR,
RESIDENCY ROAD,
BANGALORE.
TEL. : 564027
TLX. : 845-8211 PRIA IN.

HYDERABAD :
5-9-30/6 TO 8/B, 2ND FLOOR,
PRASANTHI COMMERCIAL
COMPLEX, BASHEER BAGH,
HYDERABAD-500 029.
TEL. : 236068
TLX. : 425 6334 PRIA IN.

ONGC rises output target to cut imports

Following a high-level meeting with the Union Finance Ministry, the Oil and Natural Gas Commission (ONGC) has decided to recast its Eighth Plan production programme with a view to further increasing the domestic output of oil and help the country cut imports to that extent. Under the revised plan, ONGC has decided to raise its production target for the Eighth Plan terminal year (1994-95) by five million tonnes to 46 million tonnes.

The decision to step up crude output was taken at a recent high-level meeting chaired by the Union Finance Minister, Mr. N. D. Tiwari. Besides high officials of the Finance Ministry, those present at the meeting included the top brass of the Petroleum Ministry and also the heads of several public sector undertakings dealing in oil such as ONGC, Oil India Ltd (OIL) and the Indian Oil Corporation (IOC).

The Finance Ministry has been concerned over the mounting crude imports and declining self-reliance in this commodity in spite of impressive increase in its production in the country. From a peak of 70 per cent in 1984-85, the ratio of domestic oil production to consumption is all set to decline to about 60 per cent by 1989-90, the terminal year of the Seventh Plan and to 57 per cent by 1994-95.

The Finance Ministry has come to the conclusion that crude imports will continue to soar, stride in domestic production notwithstanding, thanks to the absence of demand management in the country and the resultant growing consumption which is moving up at six to seven per cent per annum.

Th Advisory Board of Energy (ABE), the Planning Commission and the Petroleum Ministry have projected that by 2005 the country will have to import as much as 50 million tonnes of oil. With the price of oil in the global market placed at $ 40 per barrel or even beyond by that time, imports are obviously going to cost the country a fortune.

The net import of crude oil and petroleum products during 1987-88 stood at 18.3 million tonnes and 1.3 million tonnes, respectively, valued at Rs. 3,787 crores. The gross import bill for the year totalled Rs 4,336 crores.

According to Petroleum Ministry sources, it was against this background that the decision to raise the Eighth Plan oil output was taken. As per the existing plan, the cumulative production for the Eighth Plan is envisaged to be about 280.7 million tonnes of oil and oil equivalent of gas (187.660 m. tonnes of oil and 93.016 m. tonnes of gas). The cumulative production of oil and OEG during the Eighth Plan is expected to be three times the level in the Sixth Plan.

The sources said this increase in production will be possible due to the new oil and gas discoveries, the accelerated build-up in reserves, innovative strategies adopted for putting these discoveries into production through the early production system and enhanced oil recovery schemes.

The reserve accretion during the Eighth Plan is projected to be 1,008 million tonnes, the sources added.

ONGC plans to produce 173.5 million tonnes of oil and oil equivalent of gas (oil 143.810 million tonnes and gas 29.79 million tonnes) in the Seventh Plan, representing an increase of 80 per cent compared to the oil and oil equivalent of gas production in the Sixth Plan.

A notable feature of the Seventh Plan has been a build-up in the geological reserves, which is also a reflection of the intensification of its exploratory activity during this period. As against a target of 970 million tonnes reserve accretion during the Plan period, already 823 million tonnes of oil and oil equivalent of gas have been added in the first three years of the Seventh Plan (1985-88).

Some of the major new discoveries made over the last few years include Gandhar and Dahej in Gujarat, Narimanam, Kovilkalappal, Bhuvanagiri and Nanilam in the Cauvery basin, Changmaigaon in Assam, CA, CD, C-22, C-24, D-18, D-1 and 2 and B series in western offshore and GS-16 in Krishna-Godavari offshore.

The 20 year (1985-2005) corpo plan evolved by ONGC has fixed drocarbon (oil and gas) demand 2005 AD at 100 million tonnes. W ing backwards against the target ed on the basic input of conver or prognosticated resources into logical inplace reserves, year-wise basin-wise production targets been established.

The computerised planning sys also spells the means to attain the These include the quantum of expl tion, drilling and production activ

Responding to the growing im tance of natural gas in the cour ONGC's plan also incorporates concept of national gas grid, w envisages linkages between the c try's numerous gas fields and supply to various industries.

The recent review of the plan established the possibility of na gas production potential to be rev to 55 million tonnes of oil equiva of gas, thus raising the total pote to 120 million tonnes of oil and equivalent of gas by 2004-2005.

GLOBAL COPPER SURPLUS LIKEL THIS YEAR

A global surplus of 1,77,000 nes of copper is forecast by the ducers of the metal for the year 1 The surplus production, however, the end of this year is not expecte reduce the supply shortage of 128 tonnes in the first six months of 1 though the demand-supply gap will made more than good in the succ ing six months. In effect 1988 pro tion would provide a surplus of 49 tonnes this year compared with a ficit about 2,44,000 tonnes in 198

The forecast of the Internati Wrought Copper Council, represe consumers in Western Europe Au lia and Japan and representatives world copper producing countries noted that refined copper produ in 1987 rose by 3.1 per cent pared with 1986 to a record 7.69 lion tonnes while consumption ros 4.1 per cent to 8.06 million to

A heavily traded metal on the don Metal Exchange copper prices become highly volatile in the last weeks. The price fluctuttions affected the copper industry adve and produced negative impact on per uses.

RS 1,300-CR OUTLAY PLANNED

BPCL to diversify into petrochem

Bharat Petroleum Corporation Ltd., as proposed an outlay of Rs 1,300 rores for the manufacture of a wide nge of petrochemical products. The iversification into the field of petro-emicals on a large scale has become asible because of the Bombay High rude availability which offers possi-lities of making further value ad-itions and import substitution

Mr. R. K. Gajree, BPCL chairman nd managing director, told **The Eco-omic Times** that the Corporation had een formulating proposals for consi-eration and approval of the govern-ent, which if cleared would greatly nhance the production as well as of-r a wide variety of products.

The naphtha cracker complex pro-osed to be set up at a total cost of s. 1,320 crores envisages the manu-cture of 110,000 tonnes per annum polyethylenes, 100,000 tonnes of pha olefins, 60,000 tonnes of ethy-ne glycol and 90 000 tonnes of acry-nitrile. This project is expected to idge the gap in the supply of plas-cs, detergents, fibres and fibre inter-ediaries.

The corporation has also prepared project report for an elastomers com-ex. The total capital cost of the oject is estimated at Rs. 810 crores.

The project will help in bridging e gap of synthetic elastomers and bbers. It is proposed to manufacture 0,000 tonnes of styrene butadiene bber (SBR), 50,000 tonnes of poly-oprene, 24,000 tonnes of isobuty-ne, 52,000 tonnes of MTBE, and 2,000 tonnes of butene-1 and 8,000 nnes of resins.

Mr. Gajree said the naphtha derived om processing of Bombay High crude as rich in aromatics and its precur-rs and, therefore, formed an ideal edstock for the production of aroma-cs. In 1979, the BPCL submitted the oposal for production of benzene, luene and xylenes. Phase-I of the omatics project was commissioned mid-1985 with a production capa-ty of over one lakh tonnes per year of benzene and toluene from Bombay High naphtha.

BPCL's aromatics plant is the largest of its kind in the country. The phase-II of the proposal, currently under consideration of the government, involves extraction of p- and o-xylenes from the same naphtha at a cost of Rs. 363 crores.

Mr. Gajree explained that the Bombay High kerosene steamed formed a suitable feedstock for the extraction of N-paraffins required for the manufacture of synthetic detergents like linear allkyl benzene (LAB) and secondary alkane sulphonates (SAS). With this view, he said, the BPCL had proposed the extraction of N-paraffins from Bombay High kerosene at its refinery at a cost of Rs. 125 crores. The proposal is under consideration. This will provide a low cost alternative compared to a grassroot facility for bridging the gap in the demand and supply of estimates of N-paraffins. The proposal envisages the extraction 70,000 tonnes of N--paraffins for different uses.

At the Maharashtra gas cracker complex (MGCC) at Nagothane, about 100 LDPE/HDPE are planned. For this proposal, C 3 stream from cracked LPG from BPCL refinery shall supplement the feedstock requirement. Facilities for fractionating approximately 50,000 mt/a of this C 3 stream at a cost of Rs. 28.5 crores is in the advanced stages implementation at BPCL refinery.

Further taking note of the objective and obligations as a fully owned government enterprise for playing its role to provide the necessary inputs for the growth of the economy, BPCL has drawn up a perspective plan consisting of proposals to set up grassroot refineries and related petrochemical complexes at underdeveloped locations in the country.

FOR THE MOST COMPETITIVE CIF PRICE OF

Antimony Trioxide
Gallic Acid
Meta Phenylene Diamine
Meta Toluene Diamine
Epichlorohydrine

and other chemicals

Please Contact

MR. DHAIRESH K. SANGHVI

M/s. KANTILAL SANGHVI & Co.

Union Co-operative Insurance Bldg.,
23, Sir Pherozeshah Mehta Road,
BOMBAY-400 001.

Phone (Office): 2870836/2873217/2873628/2874153
(Resl.): 4226850/4229086
Telex : 11 5725 EXIM IN — 11 3356 EXIM IN
Gram : EXPIM, Bombay

Seminar on Radioisotopes & Radiation

In view of the far reaching importance of radio-isotopes in the chemical industry, Hindustan Organic Chemicals Ltd.'s Technical Association in collaboration with National Association for Applications of Radioisotope and Radiation in Industry and Patalganga & Rasayani Industries Association arranged a one day seminar on "Radioisotope Applications in Chemical Industry" on 9th June, 1988 at HOC complex, Rasayani. One of the important peaceful uses of atom is the application of radioisotopes in Industry, hydrology, agriculture and medicine.

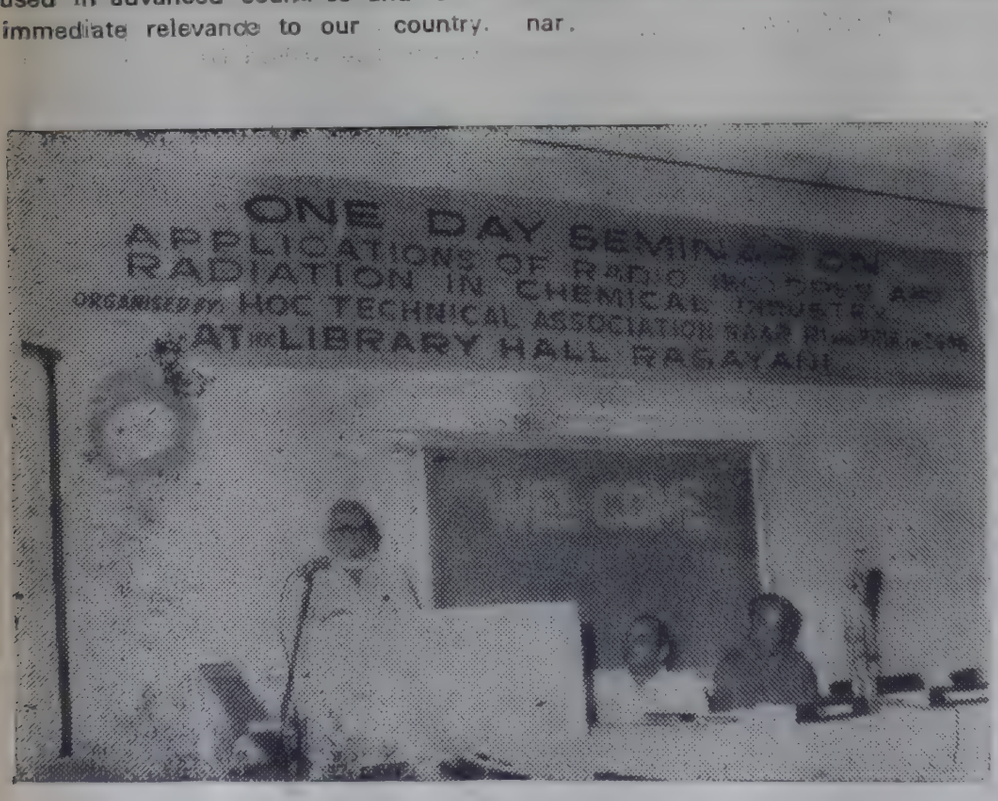
In his inaugural speech Dr M. R. Srinivasan, Chairman, Atomic Energy Commission & Secretary to Government of India highlighted that the Department of Atomic Energy has made significant contributions in peaceful application of atomic energy during the past three decades towards national developmental effort,, specially in the fields of industry, medicine, health and agriculture. He further stresed that radioisotope technology is today widely used in advanced countries and is of immediate relevance to our country. Therefore, the Department of Atomic Energy has identified the areas of radiation technology and radioisotopes applications as an important technology mission with a view to strengthen the linkages between technology developments and its end uses. He further stressed that the industry will have to play a key role in these developments and hence proper interphase between technology development in the Department of Atomic Energy and the industry is of crucial importance. As a measure of achieving this goal the Department of Atomic Energy has recently set up the Board of Radiation and Isotope technology.

Mr. H. Krishnamurthy, Chairman & Managing Director, Hindustan Organic Chemicals Ltd., presided over the function and urged all the industries in the Patalganga Rasayani area to take advantage of the multifarious uses of radioisotopes and put into practice the various techniques they would be learning during the course of this seminar. About 100 delegates from over 30 different industries enthusiastically participated in the seminar.

In his keynote address illustrating the different applications of Radiation processess and Radio-Isotopes uses in industry, Dr. V. K. Iya highlighted with statistics the fact that use of these techniques would result in a cost/benefit ratio 1000 times better than conventional means.

The seminar contributed to a full understanding of the state of art on the use of radioisotopes in chemical industry very profitably in quality control for both raw materials and finished products applying such techniques like radiation processing, tracer techniques, nucleonic systems and non-destructive testing is to be used. Radioisotopes have contributed to the development of new products like polyethylene foam, cross linked plastics, heat shrinkable tubes and synthesised ethyl bromide. Radiation is also applied for air pollution monitoring and controlling toxic emissions from chemical plants and to disinfect the sewage sludge and produces high quality fertilizers as by-product.

The welcome address was given by Shri C. Subbarao and the seminar concluded with a vote of thanks by Shri S. G. Khanolkar, Vice President of Patalganga Rasayani Industries Association.



Dr. M. R. Srinivasan, Chairman, Atomic Energy Commission delivering the inaugural address. Others sitted on the dias from (R to L) are Shri H. Krishnamurthy, Chairman and Managing Director of Hindustan Organic Chemicals Ltd. and Shri C. Subbarao, General Manager of Orkay Polyester.

OPEC MOVE TO CUT PRODUCTION

The ministerial session of the 13-member organisation of petroleum exporting countries (PEC) cartel has called for a 500,000-barrels-per-day reduction of the collective oil production quota of 15.06 million BPD for the first half of the year.

The reduction would be in effect until January 1, 1989.

Reaching an agreement on the proposal agreed in Vienna on June 12 is expected to take some time because of difficulties in determining Iraq's quota, which retained the right to produce 2.3 million BPD, the same as Iran.

The ministers will also examine the proposal by six non-OPEC members to cut down production by five per cent and to establish a dialogue on a more lasting basis with them.

Announcing the Publication of

CHEMICAL WEEKLY
ANNUAL NUMBER 1988
to be released on
INDEPENDENCE DAY

Highlighting the Achievements of the Chemical Industry over the last few years, the annual shall contain

* ARTICLES BY EMINENT PERSONS INVOLVED WITH THE INDUSTRY
* STATISTICS PERTAINING TO THE PERFORMANCE OF THE VARIOUS SECTORS OF THE CHEMICAL INDUSTRY
* IMPORT AND EXPORT PERFORMANCE, ETC.

A Unique Opportunity to Reach the Entire Readership of Chemical Weekly and many more

ADVERTISEMENT TARIFF :

Full Page : Rs. 2000 **Half Page : Rs. 1000**

One-third Page : Rs. 700

Cover pages booked.

For more details Contact :

THE ADVERTISEMENT MANAGER,

SEVAK PUBLICATIONS

Bombay Office :
306, Shri Hanuman Industrial Estate,
G. D. Ambekar Road, Wadala,
BOMBAY-400 031.
Phones : 4131198/4120743
Telex : 011-76053 CWLY-IN

Madras Office :
27, Begum Sahib 3rd Street,
1st Floor, Mount Road,
MADRAS-600 002.
Phone: C/o. 831808
Telex: 041-6290

RRL develops special polymer

It was a chance discovery for scientists but could turn out to be significant step for India's space and missile programmes.

Dr. C. K. S. Pillai and his team at the Regional Research Laboratory (RRL) in Trivandrum, were heating a piece of resin they had developed.

As the oxy-acetylene flames reached the temperature of 3000 degree celsius, the piece dropped on Dr. Pillai's arm.

To his utter surprise, the resin did not burn his skin.

This set Dr. Pillai and his team working on the special polymer, made of cashew nut shell liquid and asbestos fibres.

The result was the possibility of developing indigenous ablative materials for the fire-proofing of rockets, missiles and space re-entry vehicles.

Rockets, missible and space vehicles have to withstand a tremendous amount of heat when they re-enter the earth's atmosphere.

Ablative materials serve as a protective cover for the rocket's body, preventing their destruction by heat.

Today, Dr. Pillai and his team are working on new ablative materials using carbon fibres for the Hyderabad-based Defence Research and Development Laboratory, with the help of the Vikram Sarabhai Space Centre (USSC) in Trivandrum.

"Our idea is to make an ablative plastic using carbon fibres," Dr. Pillai said.

"It is a challenge for us because the the defence experts people think our work can be significant for their programmes," said Dr. A. D. Damodaran, Director of RRL, a constituent of the Council of Scientific and Industrial Research (CSIR).

"We have been experimenting on a series of resins with slight modification in structures," Dr. Pillai said.

Research in ablative materials is a jealously-guarded area of the advanced countries which have refused to share the information with India because of their defence applications.

Nor can these materials be imported for India's use since no country will part with them.

The RRL scientists demonstrate the ablative property of the resin they have developed, by the flower-on-the polymer' experiment.

A bunch of flowers placed on the resin and is heated with an oxyacetylene flame at 3000 degree celsius.

The flowers do not wither nor does the pad catch fire for a considerable period of time.

Scientists at the United States' National Aeronautics and Space Administration (NASA) call their experiment the 'cat-on-the-polymer' test.

A cat is made to sit on the po mer pad while it is heated to a t mendous degree. The cat keeps sitt on the pad, confirming the polyme heat-resistant quality.

Dr. Pillai said all ablative materi eventually burn out they can res heat for a considerable period of tin "This time is enough for a spa craft to overcome the heat barrier, said.

The flower-on-the-polymer expe ment has shown that when one s of the resin pad is heated, the h does not travel to the other side at least, three minutes.

Dr. Pillai said work on this spec polymer was the outcome of resea carried out by his team in develop a new resin called anorian-38'.

This fire-reatrdant pre-polymer made by synthesising available materials such as phosphoric acid cashew nut shell liquid.

'Anorian-38' used as brake-lir material in automobiles, reduces heat of friction.

Tests conducted by the Pune-ba Automotive Research Association India show that it gave a quieter b king action and imparted "low fa characteristics.

Scaling of production of the m ified resin upto 50 kg. was carried by RRL in collaboration with the ram Sarabhai Space Centre.

The technology is ready for tr fer and negotiations are on wit break-lining manufacturer.

If you are manufacturers of USP Pharmaceuticals & Bulk Chemicals (5000 kg. & above) and can supply

Aluminium Oxide, Hydrated Alumina, Ampicillin Trihydrate, Butyl-paraben, Clioquinol, Cup Oxide (Black), Calcium Sulphite, Ferrous Fumarate, Ferrous Sulphate, Iodochlorohydroxyquir Methylene Blue, Manganese Sulphate, Manganese Chloride, Methylparaben, Magnesium Chlori Potassium Iodide, Resorcinol, Podophyllum Resin, Sodium Lauryl Sulphate, Sodium Sulpha Sodium Sulphite, Sulfamethizole, Sodium Benzoate, Trimethoprim.

CONTACT :

SUSHIL GUPTA

ALCHEM LABORATORIES

B-21, Industrial Estate, Partapur,

Meerut-250 103. **Phone: 7488**

You may also contact at : 9, Girnar Building, Opp. Film Centre, Tardeo Road, Bombay-400 03 **Phone: 494170**

July 8, 1988 1 p.m. to 6 p.m. July 9, 1988 10 a.m. to 6 p.m.

York Hotel, Connaught Place, New Delhi, July 2 & 3, 1988 10 a.m. to 5 p.m.

some drugs price up by 420 pc

ces of about 300 medicines, ma- f them vital drugs for treating us ailments has shot up steep- pto 420 per cent in case of pre- tions used for treating heart dis- , cancer, vaccines, antivening nst snakebites, triple antigen, ulk vitamins, calcium and iron ucts, according to the study con- ed by Bharat Upbhokta Sahkar S), a consumer co-operative so- .

mmenting on the study the drug roller of Delhi Dr. J.L. Kaul ed that the prices of drugs had up but expressed his inability ve an exact picture.

reeing to the findings of the y, the vice president of all In Organisation of Chemists and ggists, Mr. O.P. Seth said the had gone up due to the decon- of drugs by DPCO. If the government implements the mark-up (the difference between the ex-factory price and the market price), allowed in the DPCO the prices would rise three-fold.

The study says that the price of six tablets of iopanoic acid used for arresting cardiac failure and liver insufficiency has gone up from Rss 4.47 to Rs. 23.19 (an increase of 420 per cent). A vital drug for asthma patients, aminophyline, now costs Rs. 147.50 for thousand tablets against Rs. 51.74 earlier, showing a price rise of 185 per cent.

The price of tetanus injection and antivenin has gone up by over 200 per cent, while vitamin 'C' tablets of a popular brand have their prices raised by 217 per cent.

The chairman of BUS, Mr. N.K. Bhatt said while the aim of DPCO waas to protect the consumers, it had helped manufacturers and distributors to profit at the cost of the ailing poor.

He warned that his society would seek remedy from courts if nothing was done to review DPCO.

Mr. Bhatt said even the prices of imported medicines in the finished form had gone up. Besides essential drugs like sera vaccines now cost more by 200 per cent. Mr. Bhatt wondered how the prices of vaccines like the ones for tetanus, diptheria and triple antigen been decontrolled as these were medicines needed for the national health programmes.

Mr. Bhatt refuted the government claim that prices of bulk vitamins have been decontrolled on the recommendation of the Kelkar committee and said the committee did not recommend that at all.

CIF OFFER FOR YOUR ACTUAL IMPORTS :

3 Chloro-4- Fluoraniline
3 Aminopropanethiol HCl
2,2-Dimethylthiazo lidine
N-Methyl Piperazine
N-Methyl Cyclohexylamine

3 Chloro-4-Fluro nitrobenzene
1:3 Dichloroacetone
N-Hydroxyphthalimide
Methoxyamine HCl

TI & M LIMITED

TIM

GPO BOX 1308, BOMBAY-1 PH : 2870903/4,2870492 TELEX : 11-6378-2216
PO BOX 7087, NEW DELHI-2 PH : 265658 TELEX : 31-2319
PO BOX 9151, CALCUTTA-16 PH : 442595-9 TELEX : 21-7359
PO BOX 1960, MADRAS-1 PH : 514261 TELEX : 41-301

Vital drugs : Total tax exemption sought

The Indian Medical Association (IMA) President, Dr. K.K. Shah has urged the Union Government to introduce a new drug policy providing total tax exemption for life-saving and essential drugs.

Talking to newsmen at Hubli on June 12, Dr. Shah said lifesaving and essential drugs should be manufactured in sufficient quantity. The availability of these drugs, even in remote areas, should be made easy by streamlining the distribution system.

He said following the recent Government order decontrolling certain drugs, the prices of these drugs have shot up from 100 to 800 per cent. Even the prices of life-saving drugs like tetanus toxoid had gone up by more than 200 per cent.

Dr. Shah said stringent measures should be taken to curb production of sub-standard and spurious drugs.

Dr. Shah said the Union Government should ban dumping of banned drugs by multinational companies in India.

He said the new drug policy should also provide for complete ban on counter sale of drugs by chemists. In India, there are about 60,000 drug formulations and this paved the way for increase in prices and production of substandard and spurious drugs. The Government should minimise the formulations to the international standard of 270 as prescribed by UNICEF and World Health Organisation.

Dr. Shah said the Indian Medical Association had launched a novel scheme of adopting villages and taking up immunisation in remote areas. Soon, a minimum of 100 villages would be adopted. By 1990, 1040 villages would be adopted, he added.

Dr. Shah said the Madhya Pradesh and West Bengal Governments and the Delhi Union Territory Administration have shown interest in the scheme and promised help to IMA in this regard. UNICEF and other international organisations were also aiding IMA in this work.

On sex determination, he said the Union and State Governments should exercise strict control over institutions having facilities for such tests. Expressing concern over killing of female foetus after sex determination tests, he said, in Bombay alone, more than 60,000 abortions were ported in just one year.

Replying to a question, Dr. S said Acquired Immune Deficie Syndrome (AIDS) is not a big p blem in India and spending milli of rupees on research on the dise is a waste. Instead, the Gove ment should invest money on era cating more common diseases l Malaria.

AVAILABLE

BISPHENOL-A

EPICHLOROHYDRINE

Contact

Sultanchand Bimalprakash

403, Faiz-E-Qutbi, 375, Narsinatha Street, Bombay-400 009.
Phones : 330391/323425/333298
Cable: "DELHICHEM" Telex No. : 011-75469
Kiran Mansion, 4834/24, Ansari Road,
New Delhi-110 002.
Phone: Offi.: 275955 & 275956 Resi.: 2914275 & 2510057
Telex : 031-61441 SCBP — IN

Rs. 6-CRORES OIL ORDER FOR ECIL

Electronics Corporation of In Ltd. (ECIL) has bagged a Rs. 6-cr contract for installation of a co puter-based SCADA system (Sup visory control and data acquisit system) on a turn-key basis for India Ltd. at Duliajan in Assam.

Under the contract, ECIL wo provide the Scada system comp ing instrumentation, telemetry communication systems to the distribution pipeline network of Naharkatia-Jorajan fields. It wo also supply the software for system, according to an ECIL p release.

It said the sophisticated sys would provide efficient supervis and control of flow of gas in pipeline network and ensure u terrupted supply of natural ga various consumers of Oil India the required flow and pressure els.

TECHNOLOGY DATA BANK PLANNED

Union minister of state for ind trial development M. Arunacha said on June 8 the govt. propo to set up an industrial technol data bank and a technology de lopment fund.

While the data bank was inten to supply the needed industrial formation to the government public and private sector ind tries, the fund was for the c mercialisation of technology providing funds for research jects on industrial technology said, inaugurating a national s nar on "employment genera through technology upgradat at Trivandrum.

These two steps, Mr. Arunacha said, would go a long way in creasing the industrial producti and employment opportunities.

He said the industrial growth had increased to 8.1 per cent ing 1987-88 from eight per during the past four years.

Agarbathi exports fall

The country's agarbathi exports 1987-88 might not even reach the evious year's level of Rs. seven ores, as against the target of Rs. crores proposed by the Basic emicals Export Promotion Coun- (Chemexil), Mr. K.K. Rangaiah, sident, All India Agarbathi Manu- turers' Assn. (AIAMA), said at ngalore recently. Mr. Rangaiah d newsmen that the decline in ports from the level of Rs. 11 cro- in 1982 was due to a combination factors. The African countries ere India had sizeable exports re now importing less due to ir own balance of payments pro- ms, while the ethnic Indian po- ation in the West Asian region s now coming back. Japan and uth Korea, which had gone in mechanised production, had de a significant dent into the th American market.

The problem had also been ag- vated by governmental policies, said. The CCS for agarbathi ex- ts had been withdrawn and the y drawback had been reduced n 18 per cent to 9 and only re- tly been increased to 13. He esti- ed that there had been a 15 per t cut in export incentives over last two years if one combined effect of the withdrawal of CCS the initial halving and then dual increase in duty drawback.

There was also the problem that duction in the country's premier bathi manufacturing state of nataka had been badly affected a series of decisions taken over last few years, like the enhan- ent of sales-tax, the imposition urnover and entry-tax, and the culties in obtaining permits for sporting bamboo from states Tripura and Assam.

These problems had been com- ided by the imposition of Sec- 85 of the Factories Act to the stry in Karnataka with the re- that manufacturing units had to minimum wages and variable ness allowance under the Act though 98 per cent of them e very small units which were ing it increasingly difficult to ive. It was only in Karnataka, said, that the units were being ed to pay such wages.

While the manufacture of low-value agarbathi would move from Karnataka to other states like Gujarat, Tamil Nadu and Maharashtra where the conditions were more favourable, during this process of transition the country's exports of low-value agarbathi would be hit, especially at a time when South Korea and Japan were making inroads into India's share and China was in the process of entering this industry.

The government of Karnataka had asked the Technical Consultancy Services Organisation of Karnataka (TECSOK) to look into these problems and the difficulties of getting raw materials and he hoped some action would be taken soon. A beginning had been made with the stoppage of auctions of white chips and the setting up of pulverising units by the Karnataka-Forest Industries Development Corporation. There was also a need to provide incentives for R and D activities and for mechanisation which would make Indian exports more competitive, especially in the low-value categories.

SOAPS, DETERGENTS COUNCIL RECONSTITUTED

The Union government has reconstituted the development council for soaps and detergents under the chairmanship of Mr. P.M. Sinha, director, Hindustan Lever Ltd, Bombay.

The council has 25 members who represent manufacturers of soap and detergents industry including manufacturers of soap in small-scale oil and chemical industry and representatives of consumers of soaps and detergents.

It also includes government officials from the Planning Commission, ministry of civil supplies, Bureau of Indian Standards (BIS) and representatives of khadi and village industries and labour unions.

The first meeting of the council will be inaugurated at N. Delhi on June 15 by Mr. M. Arunachalam, minister of state for industrial development.

The meeting will discuss the ways to augment the production of non-edible soapery oil and to become self-reliant in this field.

FOR MOST COMPETITIVE CIF OFFERS FOR :

Turpentine Oil

Diethyl Sulphate

Dichlone

And Other Chemicals

PLEASE CONTACT :

M/s. K. SANGHVI & Co.

308, 'Gulab', 3rd Floor, 237, P. D'Mello Road.
BOMBAY-400 001.

Phone : Office : 268970/260711 Resi. : 8128473/8226451
Grams : 'KEYSANGHVI' Telex : 11-73516 KSC IN

Meet urges measures to check drug prices rise

The new drug policy of 1986 and the drug price control order 1987 have resulted in spiralling increase of drug prices, according to a statement adopted at a national convention at Bombay on June 5.

The convention, inaugurated by the Law Commission Chairman Mr. Justice D.A. Desai, noted with concern that even in the case of drugs in price-controlled categories, the price rise was to the extent of 50 to cent per cent.

The convention regretted that the drug prices have been higher despite there being no independent and unbiased story on the profitability of drug companies. The Government is also yet tto take concrete steps to weed out such drugs, it felt.

The convention, first of its kind, was attended by 300 delegates from all over the country. It was presided over by the Indian Medical Association Vice-President, Mr. A. K. Shelat.

After the presentation of papers on all aspects of the drug policy and discussions by delegates, the statement was adopted unanimously by representatives of IMA, Federation of Medical and Sales Representatives Association of India, All-India Chemical and Pharmaceutical Employes Federation, Marathi Vigyan Parishad, consumer action societies, Progressive Lawyers' Association, Maharashtra Association of Resident Doctors, Junir Doctors Association, Indian Association of Chemical Pharmacology, experts and scientists from pharmaceutical industries.

The speakers pointed out that India has in the world market one of the largest number of drug formulations (approximately 6,000). A large number of these were irrational and even hazardous. Substandard drugs, including products of some reputed companies, , are sold and a large number of spurious drugs exist.

The statement said that import of drugs should be restricted and no drug should be allowed to be sold without Government certification.

Availability of essential drugs has always been low. The new drug policy has suggested no steps which can compel drugs companies to produce essential drugs. The manufacture of some essential drugs like insulin should not be confined to a single manufacturer, the statement said.

The statement regretted that "an unholy nexus existed between the drug industry, food and drug administration and the authorities", a fact explicitly brought out by the Lentin Commission report. It said that some provisions of law are available to curb such evils and voluntary organisations should utilise these legal provisions to secure proper action.

The convention felt that the new drug policies have been formulated keping the interest of the drug industry in mind only. While the Hathi Committee in 1974 recommended increased checks on growth of multinationals, the recent policies are aimed at giving more concessions to them in the form of increasaed import liberation and delicensing.

The statement said the Government should take measures to ensure ethical marketing of drugs and restrict advertisments of drugs on television and in the print media.

It further deprecated the tendency to marginalise the role of the public sector in the drug industry. Purchase systems in hospitals should also be changed so that essential and emergency drugs are always promptly met.

The convention pointed out that while continuation of the system of brand names has resulted in higher drug prices and porliferation of irrational drugs through aggressive sales promotion, the Government is yet to suggest firm measures for abolition of brand names and adoption of generic names.

The convention highlighted that anamolies in export and import of drugs should be abolished and the procedures be streamlined so that none can utilise hard currency to earn quick profits and escape taxattion provisions.

It demanded that the drug prices should be immediately reduced to bring them within the reach of the common man, besides implementation of the Hathi Committee and t Lentin Commission reports in rega to role of foreign companies, se reliance and elimination of substa ard and spurious drugs.

Its recommendations included co tinuation of the preparatory cor mittee for this convention, buildi up of a mass awareness campai and presentation of its findings the Union and State governments

EXPORT POTENTIAL IN MINERALS UNEXPLOITED

The massive potential for increas export of industrial minerals is g ing unexploited due to minor pr blems of category in government c cuments. These exports, which talled Rs. 136 crores during 1987 against Rs. 80 crores the previc year, may not fare so well this ye

Under the new blanket exchar permit scheme introduced by Res ve Bank some months ago, mi minerals such as barytes, benton quartz, etc., are equated with b metallic ores such as iron ore for purpose of sanction of blanket fo ign exchange permit at a maxim of two per cent of annual f.o.b. port earnings. Unlike ores, proces minor minerals are exported by sm and medium-sized firms, mostly h ing annual export earnings of ab 10 to 15 lakhs.

Under the new scheme, they entitled to Rs. 20,000 to Rs. 30,000 foreign exchange, which is bar enough for a single 15-day tour year for export promotion.

It is felt that unless "proces minor minerals" are removed fi List B of the blanket exchange p mit scheme to make them eligible receiving exchange upto five per c of their annual export earnings other export houses, mineral expc may suffer.

Being in the same category as b minerals like metal ores, coal petroleum have cost the minor min al exporters heavily over the ye Although processed minor mine are treated as select export prod for sanction of REP licence, no deduction is available to this ind try under section 80 HHC of the come Tax Act for export promo expenditures, which is a major centive.

ASK FORCE RECOMMENDS

elocation of small tanneries in new leather industry zones

Relocation of small and medium nneries, which do not lend themlves either for individual effluent eatment or for Common Effluent eatment (CET) Plants in a clusr, in new Leather Industry Zones ould be the main thrust for tackl- g the vexatious tannery disposal oblem and simultaneously achieve odernisation of processing techno- gy. This recommendation has en made by a Task Force consti- ted by the Chemical Club of Mad- s in its "Report on Effluent Ma- gement in Leather Industry." The commendations of the Task Force ere set out at a new conference cently by Mr. D. Sridharan, Spe- al Commissioner, Government of amil Nadu, Dr. R.B. Mitra, Direc- r CLRI and Mr. S. Sankaran, Sec- tary. Chemical Club all of whom ad functioned as Members of the ask Force. Addressing pressper- ersons the spokesmen pointed that e Task Force, under the Chairmanship of Dr. G. Thyagarajan, formerly Director CLRI and presently Secretary, Commonwealth Science Council in the Commonwealth Secretariat, London, was perhaps unique in its composition in that it was multi-disciplinary and multi-agency with representatives drawn from Research, Academics, Council for Leather Exports, Leather Industry, Chemical Manufacturers et. al.

The genesis of the Task Force lay in the Seminar on Effluent Control in Leather, Chemicals and Allied Industries in January 1986 when Dr. S. Varadarajan, then Director General of the Council of Scientific and Industrial Research (CSIR), delivered the key-note address and suggested an indepth study to evolve the various aspects relating to effluent control for guiding the Industry and the Government.

The Report points out that the problem of tannery effluent, although present for long, has become very acute in the last one and a half decades with increasing switchover from vegetable tanning to chrome tanning. The salt, sulphides and other putrefactive matter present in tannery waste water affect the stream quality and cause unacceptable high levels of foul odour. The intensity of pollutional character of the effluent would be seen from the fact that the Biochemical Oxygen Demand (BOD) concentration in the vegetable tanning effluent would be in the range of 6,000 to 12,000 mg/litre which is about thirty times as strong as community sewage. In respect of chromium tanning the BOD would be 2,000 to 3,000 mg/litre. As against this the Bureau of Indian Standards stipulates BOD levels of 100 mg/litre and 30 mg/litre for land and inland surface water disposal respectively. The soak liquor is highly concentrated in terms of dissolved solid and its concentration varies from 15,000 to 20,000 mg/litre as against permissible limit of 2,100 mg/litre. Where chromium tanning process is used the concentrations of chromium in the effluent is around 300 mg/litre as against permissible limit of 2 mg/

FOR YOUR REQUIREMENTS OF :

Para Toluene Sulphonic Acid
Para Toluene Sulphonyl Chloride
Para Toluene Sulphonamide
Para Chlorobenzene Sulfonamide
Ransolite (Sulphonamide Resin)

Please Contact :

Manufacturer :
USHMA INDUSTRIES
124/36A, GIDC, Nandesari,
Dist. Baroda.
Telephone: Office: 320761/320713
Resi.: 21396/22194
Telex: 0175 : 401

Authorised Dealer :
MR. PRAVINBHAI R. PATEL
PARUL TRADING CO.
Room No. 10, 1st Floor,
310-312, Samuel Street, Bombay-400 003.
Phone: Office: 327105/337738
Resi.: 5122717

litre. The Report characterises the deleterious effects caused by both organic and inorganic contents of tannery effluents on the environmental resources like surface water, ground water, agricultural land and acquatic life as extremely grave and has drawn up Technological, Management and Financial solutions to these serious problems.

Of the 2,000 tanneries in India, three States, namely, Tamil Nadu (525), West Bengal (475) and UP (200) account for the lion's share. Most of them are in the small scale with a proportion of 75% and hardly 5% are in the large scale. Most of them are not having any effluent treatment procedures let alone well-designed and effective systems. The Task Force assesses the waste water discharge from all the tanneries the country over at about 50 million litres/day.

Grouping of tanneries:

The Task Force has grouped the tanneries into three major categories from the environmental angle:—

i) tanneries having adequate land and managerial capability, which could put up their own effluent treatment plants;

ii) tanneries which are close to each other in clusters and are amenable to use a common effluent treatment (CET) system; and

iii) scattered tanneries not having adequate land, which can neither put up individual treatment plants nor can be included in a common effluent treatment scheme.

Large scale

In respect of the first category comprising mainly the large scale tanneries numbering 65, about 25 of them have already taken steps to put up effluent treatment plants. The other tanneries in the large scale tanneries have been urged by the Task Force to put up their own individual treatment units early.

Tanneries in cluster

Tanneries existing in clusters and which are contiguous should explore the possibility of putting up common effluent treatment plants for which already work is under way in two places, (Vaniyambadi in Tamil Nadu for 80 tanneries and Jajmau, Kanpur, UP, originally assessed to comprise about 70 tanneries but now slated to comprise 150). In all about nine hundred tanneries may lend themselves to the CET. The Report reiterates the need for extending substantial financial concessions including concessional rate of interest (10%), a debt-equity ratio of 3 : 1, debt service coverage ratio of 1.2 on the parallel of IDBI assistance to Industrial Estates and a moratorium of three years for starting the repayment of loan.

Scattered small scale tanneries

The Report emphasises that it is the scattered small scale tanneries which do not have adequate land, capacity and expertise to put up individual treatment plants that would pose the greatest challenge and the best option for them would be to shift to a new location to avoid the prospect of having to close down their tanneries. These would number about 1,000 the Country over and of which 250 would be in Tamil Nadu alone.

Relocation of tanneries — a new concept

The relocation of tanneries in new Leather Industry Zones on the outskirts of a City or Town (not far from the existing location), with 3 to 5 km. radius of green belt area, seems to be the only long range solution for solving the pollution problem and ensuring the growth and prosperity of this industry. The existing units which have many other constraints besides treatment of effluents can conveniently shift to such an industrial complex. In the conceptual complex, modules will be in-built for the different sectors (large, medium and small scale) for a designed capacity with sufficient scope for diversification and expansion in the future years. The modules will be suitably planned for processing hides and/or skins from i) raw to finish, ii) raw to semi tanned and iii) semi tanned to finished leather. This Tannery industrial complex will have in-built common effluent treatment systems and several other intrinsically attractive features well integrated and expertly engineered.

Advantages in relocation of tanneries

A Leather Industry Zone away from human habitation will have the following main advantages:

1. well planned combined effluent treatment plant for handling segregated and pre-treated effluents of all the tanneries;
2. adequate space in the modules to carry out the primary treatment;
3. easy to segregate the different types of effluents and lay pipelines accordingly;
4. option of using the most modern technology for treatment;
5. scope for the units to use modern concepts in plant layouts, to replace old and inefficient machines and thereby achieve improvement in quality and productivity as well as presentability;
6. improvements in the working environment and health and hygiene espects inside the tannery;
7. possibility of organizing common facilities like quality water supply, steam, power, etc.;
8. common service centres and ancillary units in the same campus;
9. intrinsic features for prevention of air pollution; and
10. isolation from human inhabited areas and overall presentability.

The Report emphasizes that this relocation in new Leather Industry Zones would achieve the twin purposes of tackling the endemic problems relating to environment upgradation and also modernization in its entire gamut of operations to fortify the small tanneries to prepare to the needs of the changing leather scenario where increasing stress would be laid on value added products in the years to come and to equip the Industry to achieve an export target of Rs. 1,700 crores by 1990.

Leather export target set at Rs 1,640 cr

Encouraged by the excellent performance of leather exports in recent years, the Council for Leather Exports (CLE) has set a target of Rs. 1,640 crores for 1989-90, the terminal year of the Seventh Plan.

This marks a substantial hike over the Rs. 1,070 crores originally envisaged in the Seventh Plan working group document.

Last year, the exports topped Rs. 1244.86 crores which was 34 per cent more than the Rs. 931 crores achieved in the previous year. The revised target for the year was Rs. 1,000 crores.

The projections for 1989-90 have been based on the individual action plans drawn up by the exporters at the instance of the Commerce Ministry. CLE has submitted 397 such plans from individual exporters for scrutiny by the Finance and Commerce Ministries.

The Cabinet Secretary has convened a meeting of leather exporters in the first week of July where a concrete strategy for further pushing up the exports would be evolved. The meeting will discuss, among other things, the problems faced by the exporters and also ascertain their specific requirements in the context of the revised targets.

This was revealed by Mr. M. Mohamed Hashim, CLE Chairman, while reviewing last year's export performance at a press conference at Madras on June 10.

He said the exports would have crossed Rs. 1300-mark but for a backlog of air cargo worth nearly Rs. 60 crores held up in Delhi and Madras airports in March this year. Of late, this problem has become very serious threatening to jeopardise the country's export calculations, he observed.

Elaborating, Mr. Hashim said the airlines, especially the national carrier in the case of Madras, have been reluctant to carry leather goods as they are low-density, high-volume products. There have been instances when consignments took more than three months to reach the destinations. This has resulted in losses to exporters as the buyers refuse to pay air freight and instead settle for sea freight.

The airlines have resorted to such delaying tactics in spite of the fact that the Government has fixed mandatory air freight rates to select destinations as leather is a thrust sector for export. Besides, the airlines have been provided with tentative projections of export by air during the current year.

Mr. Hashim felt that it was high time the airlines, especially the national carrier, took a realistic view of the situation. The Government should ensure that all cargoes are lifted within a week and delivered promptly at the destinations.

Coming back to the export scene, the CLE Chairman noted that West Germany has overtaken the USSR as the single largest importer of leather and leather goods from India. Last year, it imported leather items worth Rs. 228.91 crores which formed 19 per cent of the total exports from the country.

The share of other major importing countries are: USSR Rs. 209.36 crores (17 per cent), the US Rs. 154.04 crores (12.5 per cent), Italy Rs. 125.55 crores (10 per cent), the UK Rs. 124.21 crores (10 per cent), France Rs. 63.94 crores (five per cent) and GDR Rs. 50.59 crores (four per cent). The seven countries together accounted for over 77 per cent of the total exports.

Another important feature was that the share of value-added items in the export basket had gone up to 55.45 per cent in line with the Government policy to this effect The most spectacular growth was recorded by garments, the export of which spurted by nearly 70 per cent from Rs. 62 crores in 1986-87 to Rs. 106 crores last year. Leather footwear registered a growth of 59 per cent over the previous year.

Mr. Hashim pointed out that liberalisation in the import policy in respect of capital goods, components and consumables as also the governmental support in the form of a graded incentive policy weighted in favour of manufacture and export of value-added products have been among the major factors contributing to the increase in export earnings.

For the current year, the council has fixed a target of Rs. 1,400 crores. While the industry is optimistic of exceeding this target also, Mr. Hashim said that the Government should consider solving some of the problems coming in the way of increasing the exports.

In the first place, though the Government has recently liberalised the industrial policy in regard to setting up of footwear units only in backward areas, it is felt that it should also initiate steps for creation of a vast modern production base in the country. For this, the Government should allow setting up of footwear units with an investment of up to Rs. 1.5 crores without licence.

Another long-standing demand of the industry pertains to allowing of duty-free import of all types of finished leather under OGL.

At present, only bovine leather is allowed duty-free in the finished form.

The industry has also been seeking reduction of import duty on PU films, creation of more R & D facilities with the allocation of adequate funds, training of technical manpower and activating the Footwear Design and Development Institute, Delhi.

Mr. A. Sahasranaman, Executive Director, CLE said India would soon be in an advantageous position in the US with the coming to an end on July 1 of the generalised system of preference (GSP) enjoyed by countries like South Korea, Taiwan and Singapore.

10000 tonne carbon black to be imported

The Union Government has decided to authorise import of 10,000 tonnes of carbon black and 30,000 tonnes of feedstock for producing carbon black in the country.

Of this, licence for import of 5,000 tonnes of carbon black has already been issued, while those for the remaining 5,000 tonnes and for 30,000 tonnes of feedstock would be issued soon.

The decision, expected to be hailed by the tyre industry, will ease availability of carbon black in the domestic market. Import of 10,000 tonnes of carbon black, a raw material for producing tyres, was decided by the Industry Ministry following representations from the tyre industry to the effect that its shortage might adversely affect production.

The industry had observed that shortage of carbon black would affect tyre production at a time when the demand for tyres is rising and the industry has made a commitment to the Government to raise production by a substantial margin. It feared that unless a solution is found immediately, the industry's plans on the production front are bound to go awry.

According to the industry, truck and bus tyre production during 1988 is slated to go up by 12-15 per cent over the production in 1987. As a result, carbon black consumption is expected to go up from 80,000 tonnes in 1987 to one lakh tonnes in 1988.

The increased quantity is required not only to provide adequate raw materials for the increased production of tyres but also to build stocks of carbon black.

The industry had pleaded with the Government in March that as a short-term measure immediate import of at least 5,000 tonnes of carbon black should be permitted, so that production and export production of tyres are not adversely affected.

As is evident from the decision, the Government had tried to tackle the problem both with short and long-term measures. Immediate import of 10,000 tonnes of carbon black will meet the current need of the tyre industry.

But the long-term shortage would not be met by just imports. The carbon black producers have complained that the current shortage is due to disruption of feedstock supplies from the petroleum refineries. The carbon black producers had thus separately pleaded for import of feedstocks to enable them step up production.

This plea too was taken up by the Petroleum Ministry, which has now authorised import of 30,000 tonnes of feedstock. The objective is to provide the carbon black producers adequate raw material and ensure higher production.

While the carbon shortage for the tyre industry is now being taken care of there is no relief for the tyre manufacturers from the additional cost burden imposed on them by the steep hike in the price of nylon tyre cord, another vital raw material.

The increase in tyre cord prices was effected from May 1, 1988 by a margin of Rs. 8,500 per tonne. This costs an additional burden of Rs. 22 crores on the tyre industry's production cost.

Nylon tyre cord accounts for 37 per cent of the total raw material cost of the industry and its price has been increased four times since January 1987 — from Rs. 80,500 per tonne to the present level of Rs. 112,250 per tonne, an increase of 40 per cent.

The cumulative burden of nylon tyre cord prices in this period is estimated at Rs. 84 crores and the resultant increase in the cost of producing a truck tyre is about Rs. 280. The nylon tyre cord producers have jacked up the price despite cut in import duty on caprolactum, their main raw material, in December 1987, which should have reduced the price of cord by Rs. 5,600 per tonne.

The Government is yet to take a decision on this issue, although these developments have created a situation where the industry may be encouraged to initiate a fresh move for a price hike for tyres.

ICMR AWARD FOR 16 MEDICAL MEN

The Indian council of medical research (ICMR) awards for 1987-88 were presented to 16 medical professionals, on June 9 for their significant contribution in their respectiv fields.

to Rs. 500, and citation were give

The awards ranging from Rs. 10,00 away by the Union minister f health and family welfare, Mr. M tilal Vora, at a simple ceremony New Delhi.

The Award winners are: Mr. A. Sheth of the Institute for Researc In Reproduction, Bombay (Basan Devi Amir Chand Award for 19 for research in biomedical science Dr. S.K. Sharma, epidemiologic services and health education, Cha digarh (Dr. P.N. Raju oration awa for health services research), Dr. M.L. Kapur, AIIMS, (Sandoz orati award for cancer research); Dr. As Mathur of K.G. Medical college, Lu know (Dr. Y.S. Narayana Rao or tion award microbiology); Dr. I Verma, AIIMS, (Dr. Kamala Men medical research award for resear in paediatrics); Dr. Urmila V AIIMS (Kshanika oration award woman scientist); Dr. S.S. Sid AIIMS (M.N. Sen oration award practice of medicine), Dr. S.S. Yad of the Maulana Azad Medical C lege (ICMR prize for biomedical search in underdeveloped areas); I H.M. Bhatia, former director, in tute of immunohaematology, Bomb was given the award posthumou for research in haematology and i munohaematology (BGRC silver bilee oration award); Dr. N.K. G guly and Dr. R.C. Mahajan both the PGI, Chandigarh (Prof B.K. kat award for research in tropi diseases); Dr. V.K. Verma PGI, Ch digarh (Dr. Vidya Sagar award research in the field of mental he th); Dr. N.C. Nayak, AIIMS, (Am Mody Unichem prize for research gastroenterology); Dr. S.K. Patn reader in biochemistry, institute technology, Banaras Hindu Univ sity, and Dr. V. Mohan, of the d betes research centre, Madras, ceived the Shakuntala Amir Ch prizes for research in biomedical ences; Dr. T. Vijay Kumar of state committee on science, tech logy and environment, Trivandr (Raja Ravi Sher Singh of Ka memorial award for research in c cer) and Dr. C.P. Puri, of the in tute for research in reproduct Bombay (Tilak Venkoba Rao av for research in reproductive phy logy).

asy import norms lead to dumping of PTFE

Foreign companies have begun mping polytetra fluoro ethylene TFE), a superior variety of engi-eering plastics, in this country in a g way. These PTFE suppliers are king advantage of the easy fiscal nd physical controls on imports of is raw material into India.

These controls have facilitated im-rt of PTFE at a landed price, whi-h is about 10 per cent lower than e price of domestically produced e. As such domestic users of TFE are preferring imports to eeting their needs from domestic urces.

This development has caused con-rn among the Government policy akers as it was only in July 1987, at the country's first plant to pro-ce PTFE went into production. t the plant, located in Andhra adesh, has not been able to with-and competition from the imported riety of PTFE. Imports of PTFE are ll under Open General Licence and e duty is not high enough to make e landed price higher than the pri- of the domestically-produced TFE.

The Department of Chemicals and Petrochemicals in the Industry Ministry has been seized of the matter and some remedial measures are being contemplated to curb dumping of PTFE by foreign suppliers.

The Government is keen on putting an end to the dumping practice, as it was with a view to obviating the need for imports of PTFE that the Andhra Pradesh project was launched with an annual capacity of 500 tonnes. The plant located at Rudraram, 44 km from Hyderabad, was expected to not only meet the present domestic demand of 300 tonnes of PTFE per annum, but also to take care of the future demand, which was certain to go up once its applications gained wider recognition.

The Government had decided in the early eighties to allow the State-owned Hindustan Organic Chemicals (HOC) to pioneer the era of engineering plastics in the country. Among the various engineering plastics, it was decided to start with PTFE. Since Andhra Pradesh Industrial Development Corporation (APIDC) held a letter of intent for the manufacture of PTFE and was eager to have HOC as co-promoter, it was decided that the unit should be located in Andhra Pradesh.

It was also decided that HOC should associate the public in manufacture of PTFE by inviting them to invest in the equity shares of the new project, which will manufacture PTFE. A new company, with HOC (51 per cent share) and APIDC (11 per cent) as co-promoters and equity shares of 38 per cent, was incorporated in July 1983. The company's name is Hindustan Fluorocarbons Ltd. (HFL).

The cost of the project was estimated at Rs. 32 crores. PTFE has a wide spectrum of applications in the chemical, electronic and engineering industry as also in the strategic areas of defence, space research and nuclear research. PTFE produced by HFL, is being marketed in 11 different grades in granular, dispersion and filled forms. The quality of PTFE produced by the Indian company is considered to be comparable to the best in the world.

QUALITY ALWAYS PAYS
USE 'RAM' BRAND ISI MARK
NOW AVAILABLE REGULARLY

Borax Granular-Crystals—ISI
Boric Acid
Copper Sulphate-ISI

MANUFACTURERS

Ram Agro Chemical Industries (P) Limited

Post Box No. 146,
MADRAS-600 001.
Phones : 517626/518843 Resi. : 30784/39695
Telex : 041-6503 RAM IN
Appointing Distributors Apply Immediately
AVAILABLE FOR EXPORT ALSO ISI

FOR YOUR REQUIREMENTS OF :

EDTA DI SODIUM SALT
AMMONIUM THIOCYANATE
POTASSIUM THIOCYANATE
SODIUM THIOCYANATE
AMMONIUM CARBONATE
ZINC POLY PHOSPHATE
LEAD ACETATE
BROMO BENZENE

GLYCINE U.S.P/B.P.
(Amino. Acetic Acid)
CALAMINE I.P./B.P.
(MFG. FREZCO CORPORATION)

AMMONIUM BROMIDE
GLYCINE (Pure)
ACETAMIDE
ZINC CARBONATE
SODIUM BROMIDE
COPPER SULPHATE
HIPPURIC ACID
LEAD NITRATE

ETHYLENE THIO UREA — NA 22

PLEASE CONTACT :

M/s. PASCO TRADERS

A, 18, Jay View Co-op. Hsg. Society, Dhake Colony, Andheri (W)
Bombay-400 058.
Phone Offi : 6322847 Resi. : 6493549

Available From Ready Stocks :

SODIUM HYDROXIDE PELLETS — 'Pharma Grade'
SODIUM LAURYL SULPHATE — 'Needle' Henkel, W. Germany.
CHLOROFORM BP/USP — W. Germany (Original)
SORBIC ACID
CARBON TETRA CHLORIDE — 'Mettur Chemicals'
P. V. P. K-30 — 'BASF'
NIPAGIN SODIUM IP/BP
SACCHARINE SODIUM
SACCHARINE INSOLUBLE
GELATINE 240 BLOOMS

Please Contact :

M/s. NAPCHEMIE

79, Shamaldas Gandhi Marg, 2nd Floor,
Shop No. 2, BOMBAY-400 002.
Phones : 296805, 298821

For Your Regular Requirements Of :

DI OCTYL PHTHALATE (D.O.P.)
DI BUTYL PHTHALATE (D.B.P.)
DI ISO OCTYL PHTHALATE (D.I.O.P.)

(Mfgd. by M/s. SIL SIL CHEMICALS PVT. LTD., Panoli.)
(Authorised Distributor for all over India)

Please Contact for most Competitive Rates :

Patron Corporation

6, Gitanagar Colony, Pratapnagar Road,
BARODA-390 004.
Phone: (Off.) 551880 (Res.) 553759

Coal supply deteriorates

Availability of coal during the arter January-March 1988, in the rthern region deteriorated further against the last quarter of 1987. The survey pertaining to the av- lability of critical raw materials industrial units conducted by the HD Chamber of Commerce and In- stry reveals that during January- arch 1988, coal was in short sup- y by over 60 per cent compared to per cent in the earlier quarter. oreover, the industry also reported at supplies were sub-standard.

The survey covered a wide range industries such as textiles, engi- ering, chemical, ceramics and food dustry and various industrial raw terials such as power, coal, pig n, iron and steel materials and dustrial oils like LDO/HSD. On e basis of the feedback received had been found that the supply uation in respect of industrial raw terials had not improved during e quarter under study compared the previous quarter.

Most of the time the type of coal pplied was found to be full of dust d stone. Similarly, percentage of bon was found to be less than re- ired, resulting in lower useful lue. The poor quality coal had ected the productivity of ma- nes, boilers and turbines and reby industrial production.

The difference between the quali- allotted and quantity received dur- the quarter was 5,906 tonnes, ap- ximately 44 per cent of the quan- allotted. The industry-wise supply shortage was 72 per cent, 64 per cent and 60 per cent for vanaspati, ceramics and engineering industry, respectively.

Acute shortage of iron and steel materials including strips/sheets was experienced. The overall shortage of iron and steel materials was of the order of 2,498 tonnes which is approximately 55 per cent of the requirement of industry. The difference between the quota allotted and quota received was also very high.

Further, some of the industrial units had also to counter great difficulties in procurement of tinplates waste/waste from SAIL as well as the local market. The quality of tinplates procured from SAIL was reported to be poor and did not meet the requirement of industry.

The overall shortage of LDO and kerosene was 26 per cent and 40 per cent, respectively. The survey revealed that inadequate supply of these oils to various depots had resulted in short supply of these oils to industry. In the overall interest of industry it was essential that adequate quantum of these oils were made available, in particular for the continuous process industry.

The industrial users of furnace oil had also reported an acute shortage of the material. In percentage terms, the overall shortage was estimated at 38 per cent and for engineering industry and chemical producing units, the supply shortage was estimated at 63 per cent and 19 per cent, respectively, according to a chamber release.

Regarding availability of power, the survey revealed that the situation was as bad as was observed during the previous quarter. As against the total requirement of 115,40,139 kwh, the supply was only 29,72,718 kwh, leaving a wide supply gap of 85,67,421 kwh, which was approximately 74 per cent of the total requirement of power. Further, the difference between the quota allotted and quota received by the industry was very high and stood at 9,35,435 kwh.

CHEMICALS EXPORT TOUCHES NEW PEAK

Exports of chemicals and related products have reached a new peak crossing Rs. 1,000-crore in 1987-88, signifying the emergence of chemicals as an important non-traditional sector of India's export.

According to data now available for the chemicals sector exports are estimated at Rs. 1,031.65 crores, highest in this sector so far.

This represents an increase of Rs. 303.73 crores over the exports during the same period last year.

On the basis of export performance up to February, it is anticipated that the export target of Rs. 1,200 crores for 1987-88 set for this sector would be reached.

The data covers exports of a number of items including drugs and pharmaceuticals, organic and inorganic chemicals, agro-chemicals, dyes and dye intermediates, essential oils, cosmetics and toiletries and rubber products.

For Your Bulk Requirements Of :

FATTY ACIDS	:	Oleic, Recenolic, Linoleinic, Linseed Oil Fatty Acid & Coconut Fatty Acid.
METALLIC STEARATES	:	Lead, Calcium, Barium, Cadmium, Zinc, Aluminium etc.
PVC STABILISERS	:	**Solid:** TBLS, DBLS, DBLP, LS, CS & Package Stabilisers for Rigid PVC Pipes & Cable Industries.
	:	**Liquid:** Barium, Cadmium, Liquid Stabilisers i.e. BCP986, BC 026, Chelators.
ORGANO TIN STABILISERS	:	Toxic, Non-Toxic & Non-Sulphur.

Kindly Contact Manufacturers :

M. G. CHEMICALS & OXIDES

gd. Office : A-10/3, Indrayudha Housing Society, M. G. Road, Goregaon (W), Bombay-400 090. **Phones : 697514, 6722018.**

lmn. Office : G-42, D Wing, Dewan Apts. No. II, Navghar Vasai Road (East), Thane. **Vasai Phone: 944**

Brazil's first environmental success

Once described as the most polluted place on the face of the earth, the town of Cubatao is turning into Brazil's first environmental success story.

For decades, its 24 heavy industrial plants belched 75 noxious pollutants into the air. Asthma, bronchitis and other respiratory ailments were rife, and fish disappeared from the rivers.

But a four-year programme to clean up Cubatao, 60 kms south-east of Sao Paulo, is ensuring a healthier existence for its 100,000 inhabitants. With the fish back after 30 years, the town is even planning a fishing festival.

When the Sao Paulo state government launched the pollution control programme in 1984, experts identified 320 points of toxic emission from the local fertiliser, petrochemical and steel plants.

Today only 93 such points remain and officials expect to control them by December 1989.

In 1984, toxic emissions led Sao Paulo's environmental agency CETESB to declare 17 states of alert under which plants were closed until air quality was back to an accepted level.

In 1987 only four alerts were declared.

Paulo Nogueira, a former federal secretary for the environment who in 1984 called Cubatao the most polluted place on earth, now highlights the improvements made.

"There has been startling progress. Brazilian private and state industries and the multinationals are complying with environmental norms", he said.

Under the official programme, all companies doing business in Cubatao must abide by environmental protection laws and install anti-pollution equipment within a rigid timeframe.

"Not a single polluting company set up shop in Brazil since the Program began", said Benedito Conceicao Filho, director of CETESB in Cubatao.

He said the World Bank, federal and state governments and local companies had spent $300 million on the programme.

From the business point of view, Cubatao is ideally located. Ecologically, the location was a disaster. Cubatao lies at the foot of a 1,000 metre mountain range which prevents the dispersal of industrial fumes. A dark pollution cloud is trapped in the valley.

The traveller coming in Cubatao from Sao Paulo takes a scenic road traversing lush green forest and mountains and then encounters gigantic towers billowing fumes.

Though the hillsides are still surprisingly green, they are scarred by the effects of pollution — skeleton trees and naked veins of barren land where plants once thrived.

State prosecutors in Sao Paulo have taken 24 companies in Cubatao to court, demanding reforestation of the area.

"We want the companies to restore 67,000 hectares of plant life", said prosecutor Ronald Magri.

If the state wins, the companies would have to pay up to $800 million, the highest sum paid in an environmental case in Brazil, probably in Latin America, the prosecutor said.

The companies involved in the suit include the Brazilian subsidiary of Union Carbide and Rhodia S.A.

"We're going against the tide with financial and political power, but whether we win or lose this it marks the start of an era of environmental accountability", said Magri.

He added that little remains of Brazil's coastal forests, have the richest plant life in the world — 1.600 species, compared to 1,200 in the Amazon and 100 in the temperate forests of north America and Europe.

During the 1964-85 military dictatorship the government made Cubatao an area of "national security" under direct federal control, because of its industrial importance.

Ecologists said Cubatao's special status had made it harder to introduce environmental controls. The town is home to Petrobras, the national oil company, and a state steel works, Cosipa.

Near the Cosipa plant are the remnants of Vila Parisi, a shantytown caught between nine factories. Until recently, 15,000 people lived under the factory chimneys. Many complained of dizziness, headaches, coughing and high blood pressure.

"Most have been transferred to state housing project in a safer are The few remaining families can b seen packing their belongings o loading trucks. As soon as the leave, a tractor razes their shacks ensure they never return".

Dr. Luiz Ferreira at Vila Parisi emergency clinic said that until th demolition, the clinic received a average 300 visits each day from r sidents suffering from asthma, bro chitis and other pollution-linked d seases.

"In February 1985, slumdwelle were evacuated after one near plant leaked deadly levels of am monia into the air".

Officials say that since the fou year program began, all categor of pollutants are much better co trolled.

In July 1984, 236.6 tonnes of indu trial particles were released into t air every day. This has now dro ped by 87 per cent, while emissio of sulphur dioxide have fallen 37 per cent.

Industrialists in Cubatao say th outlook has changed. Mario Clier a director of the Carbocloro Che cals Company, said. "before, main goal was to produce above The symbol of our industries wa smoking tower. But times have anged".

Health workers say the situat is still far from perfect. One offi said that despite pollution con respiratory ailments such as tub culosis remain the leading cause death for children aged one to fo

"The situation is still quite rious. It's not the time to think job is done and we can take break", he said.

Many residents, even when n talgic for the rural Cubatao of past, strike an optimistic note. Gonclaves, who immigrated f Portugal in 1932 said, "I rem ber when banana trees grew in undance. Those days seem long a but now my neighbour has tang nes again. The industries are operating".

Glaciers forever

A debate is on among environmentsts and engineers on the feasibiy of artificially melting Himalayan ciers to meet the fresh water needs northern India.

The Central Water Commission airman, Mr. M.A. Chitale, had rently stated that CWC is considerg a proposal to artificially melt the cial snow by sprinkling coal dust sufficiently augment the supply fresh water to northern Indian vers.

A top physicist, Prof. P.R. Pishay, former director and now Proffsor emeritus of the Ahmedabad sed Physical Research Laboratory, s expressed concern at the CWC oposal and said "Mr. Chitale canit do anything substantial (in arcial glacier snow-melting) unless uses a series of nuclear implosions the Pokhran-type for the purse".

Prof. Syed Hasnain, a noted enviinmentalist and one of the project rectors of a national study on glars, has described CWC's move as l-conceived" and said that it will se serious ecological and environntal threats.

Prof. Hasnain, scientist in the hool of Environmental Sciences, waharlal Nehru University, said t the proposal will be "frauwith dangerous implications for posterity".

He said even if Government agens use nuclear implosions, it will eat the very purpose as it might ntaminate the water.

Prof. Pisharoty, in a letter to of. Hasnain, a copy of which has n sent to the Secretary, Ministry Science and Technology, has shar the environmentalists' concern r the proposal and said the Detment of Science and Technology l rejected a similar proposal 15 rs ago.

That report must be gathering st in the archives of the Governnt of India and obviously Mr. itale must be unaware of it", he d.

According to Prof. Pisharoty, sprling of coal dust would not be efitive as a 30 sq. km glacier would uire a whopping 180,000 tonnes fine carbon dust to cover it with .1 mm thick layer.

Prof. Pisharoty says a carbon coating on the glacier surface would melt a mere 250 to 630 cm equivalent of water per sq. cm.

"In other words, the dusting can produce a snow melt of about four mm a day and in a couple of days, the carbon dust would sink four to eight mm into the snow and cease to be effective for the surface will begin to reflect the heat as before".

Prof. Pisharoty compared the idea of artificially melting the glacial snow to the recent project of towing one cubic km. of ice from Antarctica to a coastal Arab state, about which he said "the entire propeller power of the entire shipping of the present world cannot tow a cubic kilometre of an iceberg, (which has) seven eighth of its total height under water".

Prof. Hasnain said India should learn from the Japanese example and "take steps to preserve its existing glacial treasures — the richest in the world — rather than squandering it away in pursuit of short-term gains".

He said Japanese scientists are using as many as 15 methods to artificially form glaciers by virtually freezing one particular area. "On the other hand, here in India, we are melting our glacial wealth for irrigating our fields and provide potable water to the people".

He said for a dry region like India, glaciers are of vital importance "as they are the perennial source of fresh water and stabilising factors of ecology" Glaciers are the key factors in not only sustaining forest life on lower elevation but also in determining the monsoon patterns".

The Professor suggested that instead of melting the precious glaciers, the Government should build high-altitude reservoirs which will be useful in not only storing excess water but also in generating electricity.

Prof. Hasnain said, to begin with, the Government should build four or five reservoirs at an altitude of three thousand to four thousand metres. The construction of one such reservoir would cost only about Rs. 1 crore "which is peanuts in comparison to what the Government spends every year on drought relief".

NOW AVAILABLE FROM MANUFACTURERS :

Hydrofluoric Acid

40%, 50%, & 60% - Bulk

ALSO AVAILABLE EX. STOCKS

1. AMMONIUM BIFLUORIDE
2. AMMONIUM FLUORIDE
3. CALCIUM FLUORIDE
4. MAGNESIUM FLUORIDE
5. POTASSIUM FLUORIDE
6. POTASSIUM BIFLUORIDE
7. POTASSIUM TITANIUM FLUORIDE
8. POTASSIUM SILICO FLUORIDE
9. SODIUM FLUORIDE (EXTRA PURE GRADE)
10. SODIUM BIFLUORIDE
11. LITHIUM FLUORIDE
12. FLUOBORIC ACID
13. COPPER FLUOBORATE
14. LEAD FLUOBORATE
15. TIN FLUOBORATE
16. POTASSIUM FLUOBORATE
17. SODIUM FLUOBORATE
18. NICKEL FLUOBORATE
19. LITHIUM CHLORIDE

Please Contact :

MADRAS FLUORINE PRIVATE LTD.

83, Kamaraj Avenue, Adyar, Madras-600 020.

Phones : 413829/410188 Factory : 651277

Grams : 'MAFLUORIDE'

Sponge iron plant for Orissa

A one million tonne sponge iron plant is likely to be set up at Daitari in Orissa.

The Steel Authority of India Ltd. (SAIL) is expected to play a vital role in the plant, official sources said.

The plant would produce sponge iron only as an intermediary product, all of which would be immediately used to produce steel.

The possibility of merging with scrap requirements of SAIL avoiding imports. Daitari iron-ore could be used by the integrated steel plant at Rourkela. The reserves at Barsua, a captive mine of the Rourkela plant, have declined.

The possibilitty of merging withh SAIL the Vizag steel plant as soon as it goes on stream was also under study, the sources said.

The sources said that Maharashtra Electro Smelt Ltd had been taken over as a subsidiary of SAIL recently. Discussions were underway for involving SAIL in a bigger way in the running the VISL of Bhadravati. SAIL has a large holding in the VISL.

Private industry in Gujarat, Maharasthra, Bihar and Karnataka sees a good, long-term future in sponge iron and is interested in one million tonne per year units which could use Bombay High oil and gas as fuel. The final product will be rolled steel.

The industry has developed only recently in the country and the first commercial unit with 30,000 tonnes per annum capacity began production in 1980.

INDUSTRIAL WASTES: GLOBAL ACCORD IN SIGHT

Mr. Alain Clerc, Chairman of a conference sponspored by the United Nations Environment Programme heads a 50-nation group of legal and technical experts formed to prepare a global agreement on the shipment of hazardous wastes.

A preliminary list that was drawn up includes 44 types of waste produced by most world industry especially those processing chemicals and minerals.

The meeting in Caracas included Western industrial countries and the Soviet Union, the group was formed last year and is to hold another meeting later this year.

The participating delegates failed to agree on whether countries through which the West would pass on its way to the storage sites should be able to have final word on whether a shipment is made.

The Group of 77, an organisation of developing nations, is demanding that transit countries have such a final say.

Mr. Clerc said the conference agreed however, that transit nations should be granted as much information as that provided to countries receiving the waste.

Disagreement remained on how long a transit nation could hold up shipments over its territory.

According to Greenpeace, the rate of such movements has accelerated in recent years. It said the main route for shipping industrial wastes, historically between industrialised Europe and North America, "has exploded into less-industrialised regions, in partcular, Africa, the Caribbean and Latin America".

AVAILABLE REGULARLY

Caustic Soda Lye/Flakes
Hydrochloric Acid
Sulphuric Acid
Oleum/Methanol
H. Acid
Benzidine Di Hydrochloride

CONTACT :

Sharp Trading & Finance Limited

3, Jafarani Mansion, 2nd Floor,
28, Kazi Sayed Street,
BOMBAY-400 003.

Tel : 330778/320187/322408 Telex : 011-5822 USHA IN

ONGC to set up technology cells

The Oil and Natural Gas Commis-on (ONGC) has decided to create chnology cells in its various re-arch and development institutes, also in its four different business oups.

The establishment of these techno-gy cells is aimed at attaining self-liance in oil-related equipment and chnology. The cell would function imarily as a nodal agency for tech-logy upgradation through applied search, innovation and adaptability the latest state of the art techno-gy. They will also help ONGC keep ce with the latest emerging trends oil technology at the global level. Presently, ONGC has a well-deve-ed infrastructure for carrying out research and development acti-ies. In fact, the emphasis has been establish an R and D institute every major critical operation the oil exploration business. The isting five R and D institutes in-de the Institute of Petroleum Ex-ration and Drilling Technology at hradun, the Institute of Reservoir dies, Ahmedad and the more re-t ones, the Institute of Produc-n Technology and the Institute of gineering and Ocean Technology OT) in Bombay.

The Commission is also consider-to set up an institute pertaining the safety and environmental mat-at Goa. The institute would help et the growing need for a syste-tic exposure to and the inculca-n of safety consciousness and en-onmental concern within the peo-associated with the petroleum in-stry.

Another pioneer institute is pro-ed to be established at Jorhat, am, to undertake intensive re-rch in the emerging technologies petroleum, bio-technology and geo-tonics, with special emphasis and lication to petroleum exploration exploitation in the north-east-states.

The technology cells in these va-us R and D institutes would be nned by personnel of exceptional ovative capability with ability to nslate ideas into implementation e cells have been modelled to ser-as nerve centres for technological ellence and co-ordinating agen-cies between the research work and its field-wise applicability.

The success of these groups would be assessed in terms of the extent to which they would be able to bring about a techno-economic advantage to a business operation. The cells are expected to function as profit centres on the same lines as the R and D institutes in which they would be located. This would help bring a greater amount of consciousness in terms of cost and time.

The technology cell concept is being extended to the business groups of ONGC, namely the exploration business group, drilling business group, operations business group and the technical business group.

In addition to performing their tasks covering a broad spectrum of activity within a particular area like exploration, drilling and production, they have also been conceived to focus attention on specific emerging areas of technology. The cells have been conceptualised in such frontier areas of technology as horizontal drilling, sub-sea completion, compressed natural gas, underground gasification of coal, crisis management, enhanced oil recovery, heavy oil recovery, well stimulation techniques, drilling and cementation of high temperature/pressure wells, multiple completion of wells, etc.

The formation of technology cells is one among the host of novel initiatives undertaken by ONGC in diverse areas as indigenisation, internationalisation of operations, modernisation of operations, research and development. Evolution of management policies, framing of low technology areas, development of alternate sources of energy, ancillary development, co-operative movement etc.

ACE INDUSTRIES
(AMIT CHEMICAL & ENGINEERING INDUSTRIES)
Office: 6/C, Rachna Apartments, V. P. Road, Andheri (West), Bombay-400 058.
Phone: 622378/577929 Gram: MAKCHEMICS
Factory: J-718/2, G.I.D.C., 40 Shed, VAPI. Dist: Balsar, Phone: 1494

Our Agents for South India :
M/S. MAHALAXMI AGENCIES,
6, Srirangam Averue, 53, Pantheon Road Egmore, Madras-600 008.
Phone : 563 889

Personalia

P.V. SWAMINATHAN, IAS TAKES OVER AS GSFC MANAGING DIRECTOR

On May 7, Mr. P.V. Swaminathan, IAS, Additional Chief Secretary has taken over as the Managing Director of Gujarat State Fertilizers Company. An MA in Mathematics, Mr. Swaminathan joined the Indian Administrative Service in 1961 and brings with him a long experience of 27 years after having served in various capacities in the State and the Central Government.

During his long career he served as the Director of Geology and Mining, Deputy Secretary and later Special Secretary in the Department of Industries, Mines and Power. He was also the Managing Director of Gujarat Mineral Development Corporation. Mr. Swaminathan was deputed to Government of India twice-first as the Secretary to the Union territories of Pondichery for $2\frac{1}{2}$ years and second as the Chairman of Coir Board from 1980 to 1983. He was responsible for formulating policies for the development of coir industries including exports. From 1983 to 1985, Mr. Swaminathan was the Managing Director of Gujarat Alkalies and Chemicals Ltd., and from 1985 to 1988, he was Vice Chairman and Managing Director of the Gujarat State Road Transport Corporation. Before he took over as the Managing Director of GSFC, Mr. Swaminathan was Secretary (Textiles) with overall charge of Industries, Mines and Energy Department.

P.V. SWAMINATHAN

He was associated as a member o Director with the Alkalies Manufacturers Association of India, Gujarat State Machine Tools Corporation, Gujarat Mineral Developmen Corporation and Gujarat Heavy Chemicals. He was also closely associated with the framing of policies an overseeing the implementation of th policies relating to the industrie mines and power sectors. He h represented India in Internation Conferences held by FAO and UNC TAD. He has participated meaning fully in the negotiation for collabora tion agreements, transfer of techn logy and equipment purchase. Th Mr. Swaminathan brings with him long managerial experience, admini trative skill and technical bac ground essential for the manag ment and growth of a huge compl like GSFC.

FERTILISER OUTPUT: KRIBHC SETS WORLD RECORD

India's co-operative fertiliser gia KRIBHCO, has established a wor record by achieving in the very fi year of its commercial production capacity utilisation of 97.5 per ce in urea and 93.4 per cent in ammon in 1986-89.

The Bombay High gas-based pla at Hajira near Surat has produc 14.15 lakh tonnes of urea and 8 lakh tonnes of ammonia during year.

Despite the fertiliser glut, KRIB CO sold 12.03 lakh tonnes of u and 0.40 lakh tonnes of imported a other fertilisers, earning a net p fit of over Rs. 18 crores, Dr. K.K Chauhan, KRIBHCO managing dir tor, said in the annual report 1986-87.

The KRIBHCO spent Rs. 60 la as drought relief providing for f der agro-inputs and drinking irrigation water supply in affe areas.

The company has declared a n den dividend of Rs. 13.84 crores the year and paid to the Centre 10.32 crores as its share of divid for its contribution of share capi

For Your Regular Requirements of :

PETROLEUM ETHER

All Ranges from 40-60 to 100-120°C including 60-95, 80-110

Hexane & Heptane

All Grades

REFINED NAPHTHALENE

Powder & Balls

SUPER FINE QUALITY

Please Contact for Supplies

Manufacturing for over 20 years.

Kandhari Chemical Industries (P) Ltd.

Malhotra House (India House), 2nd, Floor Opp. G.P.O.
BOMBAY-400 001.
Phones: 261792/262497/261354.

Need to conserve oil stressed

The PHD Chamber of Commerce d Industry (PHDCCI) has under-ed the urgent need for adopting ore fuel-efficient technologies and conservation measures particular-in industrial and transport sectors. Otherwise, as per its estimates, ude imports might go up to 75 illion tonnes by 2004-05, imposing eavy pressure on the foreign ex-hange side.

In a paper prepared on "Oil — rrent trends", the Chamber has served that conservation in oil nsumption is of great significance nce the quantity of crude oil im-rted during the first two years of e Seventh Plan has not shown any clining trend (15.2 million tonnes 1985-86 vis-a-vis 1.54 million ton-s in 1986-87).

The fall in value of crude oil im-rts from Rs. 3687 crores in 1985-86 Rs. 2058 crores in 1986-87, and the sultant savings of Rs. 1600 crores as been mainly due to a fall in the ude prices in the world market — phenomenon which is not likely to ntinue.

Although total production has sta-lised in recent years at around 30 illion tonnes, oil consumption has ntinued to grow rapidly at the rate about eight per cent per annum. s a result, the country's oil suffi-ency ratio is declining from the ak of 70 per cent reached in 1984-

While India is able to satisfy over per cent of oil requirements at esent, compared to only 30 per cent the beginning of the decade, the kelihood that demand would con-ue to grow strongly, suggested that e oil sufficiency ratio could fall to ound 50 per cent by 1995.

Against this background, the need r economy in oil use, through uti-ation of fuel-efficient equipment th an intitial objective of reducing consumption at least by 105 per nt, replacement of road transport Railways and shipping and an in-ease in the use of coal, electricity d bio-gas become imperative.

In has been estimated that while e requirement for oil would in-ease to 125 million tonnes in 2004-, oil production would then be ar-nd 50 million tonnes, which could st for a further three years at that vel.

Total probable hydrocarbon reserves of the country are estimated at around 17 billion tonnes of oil or oil equivalent gas, out of which about 75 per cent have been estabilished. So, the major question this present scenario raises is whether we should increase oil production to a level which would deplete the reserves in the first decade in the next century?

NEW ONGC METHOD TO RAISE OUTPUT

Oil and Natural Gas Commission (ONGC) claims to have successfully tried a new technique which has enabled it to get an additional oil production of 6500 barrels per day.

The new method, under which ten sick oil wells have been revived so far at Bombay, will result in a foreign exchange saving of Rs. 52.4 crores annually.

According to ONGC sources, these wells were not producing for quite some time and other conventional methods such as gas lift were unable to revive them. Oil production from the wells is adversely affected because of the water which is produced along with oil. This loss of oil output is termed as "water cut" and ultimately results in the closure of the well.

The new method makes use of the foaming agents which are injected into the well tubing. Foaming agents are well known for activation of gas wells which cease to flow due to "water cut". The suitable foaming agents can lighten or reduce the fluid column, thus allowing the well to flow.

In another high-tech break-through in its offshore hydrocarbon exploitation venture, ONGC has completed the first subsea well in Bombay offshore. The subsea completion has been introduced as a R and D venture in Bombay offshore. The first well was subjected to prolonged production testing and has a potential of 2700 barrels per day.

ONGS'S YEAR OF ACHIEVEMENT

The year 1987-88 has been the year of achievement for Oil and Natural Gas Commission (ONGC) with all around improvement in performances including target and productivity.

Col S.P. Wahi chairman ONGC during his latest visit to the eastern region headquarters at Nazira said that there were 10 discoveries of oil and gas during the year and eight discoveries were using early production system (EPS).

Horizontal wells and sub sea technology has also been successfully introduced for the first time in the country. The discovery of GS-16 in Godavari offshore is a major milestone in the oil industry of the country and it has the potential to contribute about one million tonnes per annum of oil.

TN TO EXPLOIT NEW GRANITE RESERVES

The state-owned Tamil Nadu Minerals Ltd. (TAMIN) is making efforts to exploit the promising granite reserves in Tirumayam and Kulattur taluks of the state's Pudukottai district, according to the district collector, Mr. P. Selvam.

Mr. Selvam told newsmen that Tamin's search for commercially viable shining tiles had so far revealed that the district had granite reserves in eight different colours.

He said Tamin was using advanced polishing technology for commercial production of colourful granite square pieces, as the granite industry had a very good export potential.

A Tamin spokesman said while finished pieces cost Rs. 100 to Rs. 120 per square feet, raw granite stones with specifications had a current market value of $700 per cubic metre.

NORM FOR COPPER USERS RELAXED

Manufacturers of insulated winding wires and strips as well as manufacturers of telecommunication cables and Hindustan Cables Ltd, are no longer required to register their requirements of copper with Hindustan Copper Ltd.

A public notice deleting these entries from chapter IV (which refers to canalisation) in the hand book of procedures, 1988-91, was issued by the chief controller of imports and exports on May 25.

The sponsoring authority for power generation, supply and distribution except requirements of the National Thermal Power Corporation (NTPC), will be the Central Electricity Authority, New Delhi, in terms of the same notification.

COROMANDEL FERTILISERS

EID Parry's bid to gain control

EID Parry of Madras is making a silent but determined bid to gain control of the Secunderabad-based Coromandel Fertilisers Ltd., a large undertaking manufacturing complex fertilisers and cement. According to corporate sources, EID Parry has already succeeded in increasing its stake in Coromandel Fertilisers.

The sources, however, allege that the manner in which this perfectly legitimate corporate exercise has been gone through is such as to create the impression of a scandal.

EID parry a 200-year-old multi-product company whose manufacturing range includes fertilisers, was one of the promoters of Coromandel Fertilisers along with Chevron Chemical Corporation and International Minerals and Chemicals Corporation, both of USA.

Coromandel Fertilisers' ammonium phosphate plant is located at Visakhapatnam and the cement plant with a capacity of 10 lakh tonnes per annum at Chilamkur, Cuddapah district. The company has an excellent track record in sales, profits and dividend.

An exact profile of the equity distribution in the company is not available but informed sources say that the two American companies together hold 48 to 49 per cent. EID Parry held less than 10 per cent as did the Andhra Pradesh Industrial Development Corporation (APIDC). Tht rest of the equity was distributed among the public and the financial institutions.

According to informed sources, EID-Parry first made overtures to the American partners to buy their holding but the US shareholders showed no inclination to disinvest. Then, it turned its attention to the equity held by the APIDC.

According to the sources, the Grindlays Bank, on behalf of an undisclosed party, was negotiating for the purchase of APIDC's holding with an offer of Rs. 40 per share of the face value of Rs. 10. But, EID Parry is understood to have outsmarted the Grindlays Bank and concluded a memorandum of understanding with the APIDC for buying the entire holding of the APIDC at a price of Rs. 45 per share. The deal, it is stated, involves about Rs. 8.5 crores. EID Parry is already understood to have paid an advance of Rs one crore and agreed to pay the balance within six months. It is also understood to have sought the approval of the IDBI for the deal.

The question that is being raised in corporate circles is how such approval can be granted when EID Parry is itself under the obligations of a rehabilitation loan granted by financial institutions.

It is also alleged that the MoU between EID Parry and APIDC was signed without the knowledge of the Andhra Pradesh government and that the chief minister, Mr. N.T. Rama Rao, is sore that the APIDC should have agreed, behind his back, to sell its shares to an "outside party".

Corporate circles are equally puzzled by what has reportedly followed. The financial institutions which have a stake in Coromandel Fertilisers are IFCI and IDBI. Of the two, IFCI has a larger holding. Knowledgeable sources claim that the two financial institutions have already transferred their holdings to EID Parry and the price obtained by the financial institutions was only Rs. 23.50 per share. The question that is asked is how the financial institutions have accepted a price of Rs. 23.50 when EID Parry has paid Rs. 45 per share to the APIDC. Corporate circles allege that the two financial institutions have violated all the norms for disinvestment.

They say that the immediate objective of EID Parry is to secure not less than 26 per cent of Coromandel's equity. Any party that holds more than 25 per cent of a company's equity can thwart any special resolution at the general body meeting of the company, if it wants.

FERTILISER PRICES NOT TO BE CUT FURTHER

An increase in the amount for subsidised distribution of fertilisers will not be possible, nor is it feasible to reduce the price of fertilisers further in the interest of those agriculturists who feel the price is ra high, according to Union ministe state for fertilisers R. Prabhu.

Speaking to reporters at Mad recently, Mr. Prabhu said the U govt. was spending Rs. 3 crores annually towards fertili subsidiy for the benefit of small medium farmers. In view of recent 7.5 per cent reduction in price of fertilisers, a 50 kg bag fertilisers now cost Rs. 108.80. however, rejected any further duction in the price of fertilisers

The minister said the country producing 180 to 200 lakh tonnes nually while the consumption around 150-160 lakh tonnes. In v of the surplus production, the port of fertilisers had been sto for the last two years. There i proposal to set up any more fe ser units during the Eighth Plar added.

Earlier, inaugurating the 'f and home' anniversary celebrat organised by the All India R Madurai, Mr. Prabhu said I which had produced foodgrain the tune of 500 lakh tonnes at time of Independence with a pop tion of 38 crores, had trebled its duction with the population r than doubled.

He urged farmers to adopt scientific methods for boosting f grains production in order to en the country achieve the target o million tonnes during 1988-89. to drought during the last two y the foodgrains production dwindled by 1.5 crore tonnes said.

Dr. V. Rajagopalan, vice chanc Tamil Nadu Agricultural Unive Coimbatore, who presided ove function, said only 35 per ce agriculturists were adopting mo methods of production. Agricul colleges should conduct mor searches to find methods to re the cost of agricultural produ he suggested.

The vice chancellor said the jore farmers had not been awa direct sowing of paddy till last But, on the advice of the agricu department, they resorted to sowing and reaped benefits. H the five stations of the AIR in Nadu were doing creditable s for the cause of farmers th their 'farm and home' broadca

HDPE processors in dilemma

e large-scale imports of HDPE andla port by under-invoicing later routing it to the regular et have attracted the attention ustoms officials and the Central au of Investigation.

e clandestine operation (in h senior officials are reported to n league with known "opera-") has destabilised the HDPE et in India. And, the process- of the high density polyethylene in a dilemma: they don't know ther, to go in for this "irregu-y" or get a "bashing" in the ket.

e international prices of various es of HDPE are ranging bet-n $ 1,300 and $ 1,500. Some tra- negotiate the price at $ 600 and rest is paid in havala or adjust- within the country through vari- means, it is learnt.

e imports are offered to proces- at very "attractive" prices out which, it is estimated, about 60 cent is invoiced and the balance 40 cent is paid in cash. As a re- genuine actual users or import- in Bombay are at a big disadvan- because of the competition red by the processors who buy under-involced products.

e customs officials have realised the revenue loss to the govern-t is huge and they have begun e monitoring of the clandestine ation, the tentacles of which are ad all over the country.

s an immediate measure, the bay customs are likely to send leline prices to the Kandla, Cal-a and Madras ports for clearing imported HDPE consignments.

econdly, as a long-term measure, rate of customs duty will be fix- on a per-tonne basis, instead of **valorem,** based on prevailing in-national prices. This is expected act as a disincentive to the trad- who are indulging in underin-cing and also prevent losses to government in customs collec-

is pointed out that similar ir-ularities were being practised in PE imports also till these were alised by the Indian Petroche-cals Corporation Limited via the te Trading Corporation. The im-ts of HDPE by under-invoicing cause of the stagnation in indigenous production.

For the last four years the annual production of HDPE in the country has remained at 40,000 tonnes, whereas the demand during the period has gone up from around 70,000 tonnes to over 1,40,000 tonnes. To meet the growing demand, HDPE imports by actual users were allowed under open general licence and also by traders against REP licences. Thus, about 100,000 tonnes of HDPE are being imported annually.

The main ports of entry of these HDPE imports are Bombay, Calcutta, Kandla and Madras. The prevailing customs duty is 114.5 per cent. The Kandla port has registered record imports recently. The main cargo being exported out of Kandla is rice, pepper, guar gum, cloth and Maruti cars etc. On the import side, are Maruti assemblies, auto parts, timber and plastics etc.

It is estimated that on an average about 4,000 tonnes of plastics is being presently imported at Kandla per month, which used to be just about 1,000 tonnes per month till two years ago. The sudden spurt in quantities imported at Kandla is attributed to the fact various charges like port trust, container destuffing, detention, demurrage, warehousing etc. are lower as compared to Bombay.

Yet another reason given is that because of the skeletal staff there, the "irregular charges" are lower. Also, at Kandla port the bond space is not at all a problem, whereas at Bombay importers have to incur additional Rs. 0.70 to Rs. 1.00 per bag for getting bond space and incur demurrage in the process.

As far as HDPE usage is concerned, it has now become the must raw material for household plastics articles, moulded luggage and woven sacks. And imports have increased in that proportion.

IEL'S LDPE PLANT
BENGAL GOVERNMENT SAYS NO TO DISMANTLING

The West Bengal government has put its foot down against the dismantling of IEL's LDPE (low-density polyethylene) plant at Rishra. The government's argument is that the dismantling will mean loss of jobs, hence the proposal could not be entertained.

IEL had earlier entered into a deal with Bindal Agro Chemicals Ltd., the agro-based company belonging to the Oswal Agro group. whereby it was decided that Bindal Agro would dismantle the plant, cart it away to Noida and install it there.

IEL, however, remains committed to disposing of the plant even though the LDPE price has shot up to Rs. 35 from Rs. 20 a kg in recent periods. The company, therefore, has initiated negotiations with several parties, including Bindal Agro to sell off the plant on as-is-where-is basis.

This will mean anyone buying the plant will have to run it at the present site. Negotiations have reportedly made headway with one of the parties bidding for the plant. Sources close to IEL indicate that the deal is likely to be clinched soon.

IEL does not lose much even if it has to sell the plant on as-is-where-is basis. On the contrary, it has reasons to be happy about it. It now insists on higher price for the land and buildings to be sold along with the plant. The plant is located over an area of about 14 acres of which about three acres are being retained by IEL, disposing of the balance 11 acres along with the plant.

The protection of jobs is another cause for satisfaction. The LDPE plant employed 260 people, IEL got rid of them by paying a handsome compensation. Only 26 of them have been redeployed by the company in the adjacent paint factory and other establishments. Whoever becomes the new owner of the plant, it is hoped, will choose from among those earlier employed in the plant. After all, the new owner will also require trained people to run the plant.

One of the major factors responsible for IEL plan to sell off the LDPE plant is the non-availability of industrial alcohol. Supplies from Uttar Pradesh, the major producer of industrial alcohol, have been irregular forcing IEL to keep the plant virtually idle for a long time. In fact the earlier decision to dismantle the plant and install it at Noida was also taken in view of the alcohol shortage.

Poor foreign knowhow bane of heavy water plants

Adoption of "underdeveloped" foreign technology is the bane of India's heavy water plants, nuclear exports say.

According to them, in the early sixties when India was looking for heavy water technology, only four countries — Norway, Canada, the US and the Soviet Union — had fully developed it.

"But these four were not ready to lend India the expertise forcing it to look for it elsewhere." the experts say.

In these circumstances, India had to go in for French and West German technology for setting up its heavy water plants.

"But France and West Germany were then in a nascent stage of developing this technology. India with no other option in sight had to go in for it."

Another reason attributed by experts for the poor functioning of Indian heavy water units is the "unsatisfactory" functioning of some fertiilser plants.

"By-products from some of these were vital to the smooth functioning of the heavy water plants, but most of them did not function properly, affecting the production of heavy water in the process."

According to the experts, these were the two main factors responsible for upsetting India's heavy water production programme.

Quashing allegations that France and West Germany took India for a ride, the experts say, "it is a classic example of a positive step taken with the best of intentions having boomeranged."

"It was the best possible option in the given set of circumstances and could have worked wonders if everything had gone as expected," they claim.

"Our own scientists have perfected the heavy water production technology over a period of time and as plants with major indigenous component go on stream the problem will be solved," the experts say.

Two new heavy water plants with maximum indigenous component are coming up at Manuguru and Hazira and more are to be constructed in the near future.

The indigenous heavy water plants will have an annual production capacity of 150 to 200 tonnes.

It is envisaged that India would achieve an installed heavy water capacity of 13,000 tonnes by the turn of the century.

Recently, there have been a spate of reports that India's heavy water plants have not been functioning at more than 30 per cent of their capacity for the past several years.

Heavy water and its production form an essential component of India's nuclear programme and for achieving nuclear power target of 10,000 mw by the turn of the century.

Most of India's nuclear reactors are based on the Canadian model which uses natural uranium and for which heavy water is essential. This model was opted for as India has natural uranium in abundance.

The quantum of India's annual production of heavy water has never been revealed.

Officials have, however, all along maintained that India is producing enough of it to meet its needs.

Heavy water has no direct use in making nuclear weapons. It is used as a moderator in nuclear reactors fuelled by natural uranium.

The proportion of heavy water is only a few parts in a million in ordinary water and is obtained through a difficult process of chemical engineering. It can be used over and over again after undergoing a process called "fractional distillation."

According to estimates, the production of one kg of heavy water costs about Rs. 6,500.

Generation of one mw of power requires one tonne of heavy water.

India will again need heavy water later this year when the first unit of the Narora atomic power project becomes "critical".

A reactor becomes critical when a sustained level of chain reaction is achieved.

India's first heavy water plant was commissioned in 1960. However, heavy water was produced on commercial scale only on August 1962, with the commissioning of th Nangal plant.

SWADESHI KNOW-HOW

In a recent interview, the direc tor-general of the Council of Scien tific and Industrial Research (CSIR Dr. Mitra, bemoaned the fact tha Indian industry tends to go in fo imported technology even when in digenous technology is available He added that the quality of resear ch in Indian laboratories has becom the envy of the developed worl But Indian managers are hardly in terested in them. A foreign con nection, he pointed out, helps sell a product. What Dr. Mitra h said amounts to an indictment Indian industry and propriety d mands that the latter should sta its position vis-a-vis the charge.

On the other hand, CSIR itse should also do some soul-searchin to find out why its know-how do not have any takers. Industr spokesmen often mention that th system of disseminating informatio about technologies being develope is not properly organised. Sellin a new process is as important developing one, and many of t foreign companies have acquired special skill in this area. Secon Indian entrepreneurs are deterr by red tape in dealing with gover ment bodies. Third, more oft than not, CSIR technologies fail deliver the goods on being up-sc ed from the laboratory to the fa tory. Abroad, the user gets them a wider array and that after bei fully tested, something which is n the usual practice in this countr

The worst part of the technolo scene, however, is the near-total a ersion of Indian companies to und take any kind of research on the own — a point that Dr. Mitra h emphatically made in his intervie This attitude has changed little ev after the government has allow fiscal incentives for research and d velopment. It is time, therefo that the government and indust start an earnest dialogue to fi out what more needs to be done change the situation.

— Economic Tim

150 billion dollar needed to restore environment

nvestments close to $ 150 billion year over the next decade will needed to restore the earth's enonmental health and put the rld economy back on a suitable th, according to a report by the rldwatch Institute.

The earth's physical condition is teriorating on several major fronts reatening the long-term viability the global economy, says the shington-based institute's report, te of the World 1988, the fifth its series of annual assessments.

The report says the threat to ecomic progress posed by continuing vironmental deterioration is no ger hypothetical. Dozens of counes in Africa and Latin America ll have lower living standards at end of the eighties than at the ginning. "We can no longer asne that economic progress is autotive anywhere," it says.

Two barriers now stand in the y of ensuring that resources to prove the human condition are ilable on the scale needed. One the profound misallocation of cal implicit in global military exnditures of $ 900 billion each year. e second is the unmanageable ird World debt that burdens the rld economy.

The external debt of the Third rld, now over $ one trillion and reasing by some $ 50 billions a r, has grown beyond all reasone hope of repayment. Interest yments of some $ 80 billion per r have reversed the traditional flow of capital from the indus- to the developing countries, ding to a net capital transfer n poor to rich countries of near- $ 30 billion annually.

One possible response to this untele situation is to set up a fund htly managed by the International netary Fund and the World Bank a Debt Retirement Fund (DRF) with the aim of retiring enough rd world debts to restore econo- progress.

The 1987 restructuring of the rld Bank, designed to emphasise vironmental concerns in develop- nt planning, puts this major len- in a position to provide leadership in formulating sustainable development strategies. A fund to retire outstanding debt could complement such a mission.

The projected investments needed to protect life support systems, stabilise climate and reduce Third World debt to a manageable level could be obtained either by increasing taxes or by reducing social or military expenditures, the two dominant categories of budgetary outlays, as national security comes to be defined more in environmental and economic terms and less in military terms. It makes more sense to divert the resources needed for a sustainability budget from the military sector.

In some respects, the report says the world situation today resembles that of the mid-forties. During the forties, the world was devastated by war. In the late eighties, it is being devastated ecologically by destructive energy policies and failed population policies. Parallels between the world situation in the late eighties and in the mid-forties suggest a need for new mechanisms of international cooperation.

REGIONAL STUDY OF ENVIRONMENT PROBLEM IN KERALA URGED

Kerala agriculture minister V.V. Raghavan has suggested that the environmental problems of each region should be studied separately.

He was inaugurating a seminar on the status of environment and natural resources of Trivandrum district, organised by the Institute of Natural Resources Development and the state committees on science, technology, and environment at Trivandrum.

Mr. Raghavan said environmental issues should not be the domain of intellectuals alone. Workers and people from other spheres of life should also take interest in it.

Dr. A.D. Damodaran, director of the regional research laboratory (CSIR), said the environmental problems should be handled by experts. The laboratory was developing technology for treatment of effluents from different kinds of rubber processing plants. He said the work was expected to be completed in a year.

RUBBER OUTPUT ESTIMATED AT 2.35 LAKH TONNES

India produced 235,217 tonnes of natural rubber and consumed 286,530 tonnes during the last financial year ending March 1988, according to the provisional estimates of the Rubber Board.

Against the deficit of 51,313 tonnes, 48,396 tonnes was imported during the 11 months ending February 1988, as against 45,356 tonnes during the whole of the previous year.

The total stock with growers, traders, processors, manufacturers and STC at the end of February 1988 was 70,280 tonnes, statistics showed.

Production of synthetic rubber during last year went up to 43,822 tonnes, compared to 38,816 tonnes in the previous year — an increase of 11.5 per cent.

At the same time, consumption of synthetics during the 11-month period ending February 1988 totalled 69,680 tonnes, an increase of seven per cent over the corresponding period of the previous year. 25,480 tonnes of synthetics were imported last year.

RADIOISOTOPES' USE IN MEDICINE STRESSED

Application of radioisotopes in industry, hydrology, agriculture and medicine was highlighted at a seminar organised by the technological association of Hindustan Organic Chemicals at Rasayani 60 km from Bombay.

Dr. M. R. Srinivasan, chairman of the Atomic Energy Commission stressed the need for developing a proper interface between the industry and the technology developed by the department.

Mr. H. Krishnamurthy, chairman and managing director of HOC urged the chemical units in Patalganga-Rasayani area to take advantage of the multifarious techniques offered by isotopes.

Dr. V.K. Iya, in his key-note address, said that the cost-benefit ratio would be 1,000 times more in the isotope techniques compared to the conventional means.

S & T TIE-UPS

Indo-German working group to spot new areas

India and West Germany have set up a working group to identify new areas of co-operation in science and technology and recommend measures for speedy implementation of the projects.

The announcement came as a culmination of the Prime Minister, Mr. Rajiv Gandhi's three-day visit which he rounded off today after assuring leading German industrialists that India would be more flexible with regard to foreign investments involving transfer of technology, and strengthening of India's export capability.

The decision to set up a working group was taken on June 7 at an unscheduled meeting between Mr. Gandhi and the West German Chancellor, Mr. Helmut Kohl.

The two leaders had conferred without aides after a banquet Mr. Kohl held in honour of Mr. Gandhi

The German side has given names of three officials while the Indian side agreed to give the names on return of the Prime Minister to New Delhi.

Speaking to German industrialists, the Prime Minister sought to allay suspicions among German industrialists that the Japanese are outplaying them in investments and trade with India. He also dismissed suggestions that India gave preferential treatment to some countries in regard to foreign investments.

"You will get all the benefits open to foreign investors and no country will have advantage over another", he said.

The joint evaluation committee would immediately start work and identify areas where India requires German collaboration which could facilitate absorption of new high technology to be transferred later.

It also decided to take additional steps to promote German investments in India.

The Indian side informed the hosts that rules and regulations would be further relaxed and simplified to attract investments from medium-level German firms which are producing high-tech goods and machinery.

It was also decided that to promote cultural contacts between the two countries, a festival of India would be held in Germany in 1990 and a German festival would be held in India later on.

The decision was taken in persuance of the desire expressed by both Mr. Kohl and Mr. Gandhi to sustain the growing bilateral economic and technical co-operation between the two countries, it was essential to promote cultural contacts.

The German side will also explore possibilities of purchasing software from India as it feels that India has adequately demonstrated its capabilities in the field.

Another important decision that emerged from Mr. Gandhi's visit is that both sides would exchange several delegations at various levels to keep each other informed of the developments in the economic and cultural fields and further intensify co-operation wherever possible.

Officials said the political understanding that has been established between Mr. Gandhi and Mr. Kohl would give a fresh impetus to Indo-German ties.

They said there is considerable amount of convergence of views between the two leaders on the question of disarmament and other major international political and economic issues.

Mr. Gandhi rounded off his visit with a series of meeting with German leaders on June 8. He 1st met the German Deputy Chancellor and Foreign Minister, Mr. Hans Dietrich Genscher when they discussed international issues in detail.

Then the Prime Minister met the Minister of Economics, Mr. Martin Bangemann, and the Chairman of the Socialist Democratic Party Mr. Hans Jochen Vogel.

Mr. Gandhi had a luncheon meeting with German industrialists.

He addressed a press conference before flying to New York where he will address the third special session of the United Nations General Assembly on disarmament.

TECHNOLOGY DEVELOPMENT

Centre to open in Bangalore in October

A Centre for Technology Development (CTD) with a $12 million assistance from the United States Agency for International Development (USAID) will start functioning in this science city from October this year.

CTD is part of the second generation mission projects of USAID aimed at accelerating the pace and quality of technological change in India It is an outgrowth of the Programme for Advancement of Commercial Technology (PACT) which USAID had managed along with the Industrial Credit and Investment Corporation of India.

According to the project identification document, the project would help create and sustain the climate and processes, which would increase the development of technology and its use. The efforts, initially covering small and medium scale industries in Karnataka, could be repeated elsewhere in the country.

While supporting the project, the department of industrial development of the Union Government had recommended that the CTD should be a national institution dealing with the requirements of all the states. The Central government's proposal to set up a technology information bank with European Economic Commission aid should also be handled by the CTD.

USAID would commit five million on the centre for the first two months. Action had already been initiated to get a society registered as a non-profit making, non-governmental, and charitable society.

The Karnataka government would provide an annual grant of Rs. lakhs from the budget provision the department of science and technology for the CTD in which Karnataka State Industrial Investment and Development Corporation would actively participate.

The ICICI which had been assigned the special responsibility of fostering development in Karnataka and other selected states, would be a link to the project. ICICI chairman N. Vaghul has committed that organisation would provide a 20-crore venture capital fund to support projects sponsored by the

Indian Institute of Science director C.N.R. Rao will head the whose members include Mr. N. Vaghul and Planning Commission member Abid Hussain in his capacity the chairman of the Indian Institute of Management, Bangalore, national president of the Confederation Engineering Industry, the chief secretary and the secretary of industry and commerce of the Karnataka government.

Rubber units in a fix

The domestic rubber industry's mpaign to get natural rubber pri- s fixed on cost plus basis, marks a ift away from its traditional focus n lower overseas prices.

So far, the industry has been ar- uing for either a sharp reduction the prices of indigenous rubber free imports, leaning on the in- rnational market where the sup- ies could always be had at half the omestic prices or less.

The change in the industry's rategy has been forced by a change the market's complexion. The ternational trade in rubber has een aflame in the past few months, rowing into disarray the delica- arrangements made by the Inter- tional Rubber Organisation (Inro) regulate the prices.

Under the rubber agreement, whi- came into effect in 1981, the buf- r stock manager must check a rise price once it has breached the up- er indicative price of 270 Malaysi- n/Singapore cents.

But the recent prices have not ly set an eight-year high but sma- ed through the ceiling. The feeble sistance from the buffer stock sal- was no match for the speculative terests and short covering. As a sult, RSS No. 1, the premium hedg- g grade on the Malaysian Exchan- , hit a peak of 365 Malaysian cents d is heading for the 400-cents ark.

During the past ten months, after e price had hit the "may sell" vel of 232 cents a kg., the buffer ock manager had sold more than o-thirds of his 3.70 lakh tonne ckpile. What surprises both the dustry and the trade is the price end that has not responded either the buffer stock operations or sea- nal factors.

It is considered strange that the d of the wintering period in South ast Asian countries recently had t led to a softening of the market. intering reduces production sharp- because of slower latex flow from e rubber trees.

But the current buoyancy in rubber has deeper roots in an expanding market. The demand from traditional buyers in the industrialised countries remains as strong as ever. At the same time, China, South Korea and Taiwan, among others, have entered the market in a big way.

A new development is the extensive use of examination gloves and condoms because of the fear of AIDS in many countries. This has led to a scramble for latex rubber. Although latex rubber accounts for only seven per cent of the total production, its acute shortage has led to tight supply in other grades.

As a matter of fact, at 8 Malaysian dollars a kg., concentrated latex rubber has registered a two-fold increase since last January.

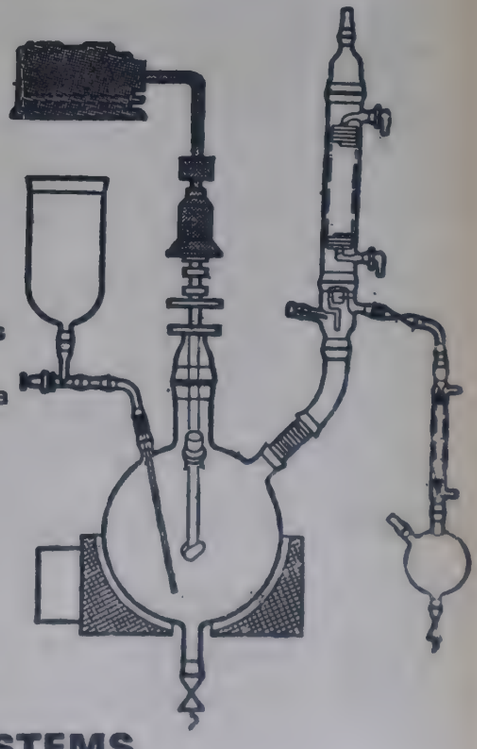
The hardening trend of the market, which shows no sign of weakness at the moment, has encouraged the growers the world over to view the future with optimism even as it let loose a hornet's nest among the industry. The Indian growers lost no time in pressing for a price hike to Rs. 22 a kg. In doing so, they have only followed in the footsteps of the industry that was referring to the international rates, it is said.

Robbed thus of a major supporting factor, the domestic industry is turning its attention to the production costs and productivity of raw rubber. In the process, it has enlisted the assistance of a London-based study group to drive home the point that Indian rubber prices do not reflect the sharp increase in its productivity from about 300 kg. to 930 kg. per hectare.

According to the All-India Rubber Industries Association, any price for the raw material above Rs. 13 a kg is unreasonable.

In all higher prices for raw rubber will make things easy for the Rubber Board all the more anxious to break the area-specific syndrome in its cultivation. Without the necessary backing in funds, it is now facing an uphill task in this respect.

Q.V.F. TYPE GLASS ASSEMBLIES



We manufacture
-Reflux Reaction Distillation assemblies upto 200 Litre
-Overhead condenser/distillation assembly on glasslined reactor
-Heat Exchangers, Cascade coolers and Shell & tube condensers
-Pipeline components upto 12" Dia

Latest from us
-HCL Purification unit
-HCL generation tower
-HCL absorption tower
-Repairing of broken flasks upto 200 litre
100 & 200 Litre flasks Ex-stock

ABLAZE PROCESS SYSTEMS
E/52, SARDAR ESTATE, AJWA ROAD, BARODA-390 019.
PHONE: 640941. GRAM: ABLAZESS, TELEX: 0175-338 BPC IN
The most advance name in process glass technique

New Products

CATALYSTS FOR CHEMICAL PROCESS TECHNOLOGY

At this year's ACHEMA exhibition, Degussa AG of Frankfurt am Main is presenting a full selection of its chemical catalysts. The production range for suspension and fixed bed processes consists of precious and non-precious metal supported catalysts and activated metal catalysts, including in particular activated nickel catalysts. These catalysts are used by the chemical industry mainly for hydrogenation, dehydrogenation, isomerization and selective oxidation in the manufacture of a wide range of intermediate products such as fine pharmaceutical chemicals, sugar alcohols, amines, agricultural and rubber chemicals, aromas and perfumes. Degussa also produces fixed bed catalysts on a contractual basis and undertakes the recovery of precious metals from spent catalysts.

Degussa's product range has been expanded since the last ACHEMA exhibition. In addition to their conventional delivered form (aqueous suspensions), activated nickel catalysts are for instance now supplied embedded in an organic protective medium. In the field of pulverised precious-metal catalysts, various new types are available for specific oxidation reactions. Several new fixed bed catalysts have also been developed and are now ready for practical application.

Degussa manufactures chemical catalysts in Hanau-Wolfgang, (Federal Republic of Germany), South Plainfield, New Jersey (USA), Kankakee, Illinois (USA) and Sao Paulo (Brazil). The company is also carrying out intensive development work on the improvement and expansion of its catalyst range and is interested in technical and commercial cooperation with other firms in this area.

Visitors to ACHEMA can obt further detailed information fr the Degussa stand (J 14-16) in H 4.2.

"OPTICAL-QUALITY" TRIALLY CYANURATE

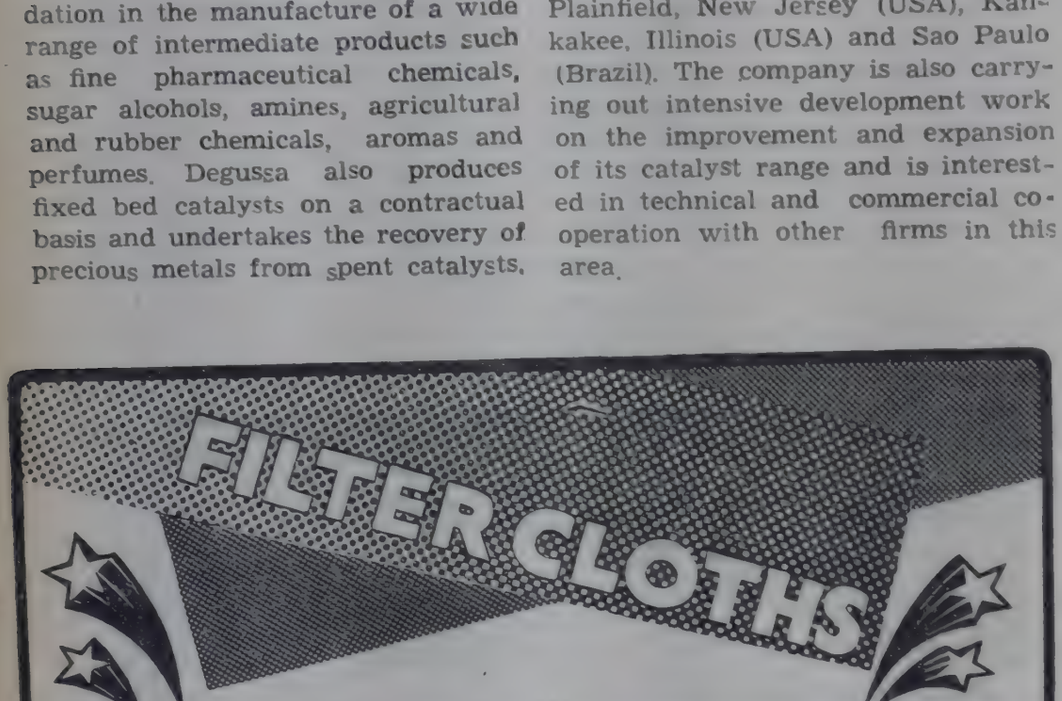
Standard triallyl cyanurate (TA which is used as a co-agent in peroxidic and electron-beam cro linking of polymers to increase cross-linking density and impr the mechanical properties and th mal loading capacity of plastics, c sists of colourless or pale yel crystals. The fact that the colo ing of the product intensifies if is stored for long periods is unportant for coloured cable insula and sealants, but it is objection in the case of shrink hoses, and pairs the appearance of high-v plastic products in general. For reason, Degussa AG of Frankfurt Main has, in addition to the stanc product, developed a special grade which is completely colou and remains so even in long-t storage. The new product, whic marketed as "Optical-quality T and has a purity of at least 99% particularly suitable for use comonomer during the polymer tion of metal methacrylate and ethylene glycol bis-allyl carbo where the polymers have to high visual specifications.

MGCC ON SCHEDULE

Rumours of inordinate delay the implementation of the Mahar tra Gas Cracker Complex (MG are unfounded, according to a connected source.

The mechanical erection of gas cracker will be completed August next year, followed by runs, the source claimed. The l project would be commissione the first quarter of 1990 and the lypropylene plant would go on st in April 1989, earlier than sched he said.

However, he admitted minor d on some fronts. But this is bec all supplies are met indigenous MGCC is not a turnkey projec added.



FILTER CLOTHS

In Cotton, Nylon, Acrylic polyester Fibre polypropylene, P.V.A., P.V.C. are manufactured in over 400 Varieties and also Supplied as per your specifications and requirements. prices are competitive.
Our full-fledged technical department is ready to assist you.

Please contact for further details and sample.

BHARAT INDUSTRIAL CORPORATION

TELEX: 011-72262 DRAG IN.

90, BHAJIPALA LANE TAVAWALA, BLDG. BOMBAY 400 003.
GRAM: "BHARATTUBE", BOMBAY - 400 003.
PHONE: 341920, 341869, 335759 ■ RESI.: 5134142

PRINT-DESIGN

COMPANY NOTES

PES PINNED ON FERTILISER DIVISION :

IEL may fare better

e performance of IEL Limi- during the six-month period d March 31, 1988 has not i satisfactory when compar- o its working in the corres- ling period of the previous . The profit after tax during period amounted to Rs. 7.04 es, against Rs. 9.04 crores ne corresponding period of previous year.

et, the IEL board of directors les confidence that the com- would turn out encouraging lts in the 18-month period ng March 1989. The com- earned a profit of Rs. 5.05 es in the year ended Septem- 30, 1987.

he board, according to Mr. r Sengupta, IEL chairman, take a decision on interim dend at its meeting in Au- .

luch hope is pinned on ferti- which accounts for nearly 50 per cent of the company's current profits. The profit for six months ended March 31, 1988, says Mr. Sengupta, was depressed because of the impact of the large urea stocks carried forward from the previous financial year. The stocks had been built up as a sequel to poor offtake caused by the drought situation in the country. The stock position was as high as 204,000 tonnes as on September 30,1987.

Yet, during six months, October-March, 1987-88, the company's fertiliser business progressed satisfactorily with net sales increasing by Rs. 13.64 crores over the corresponding period of last year. Sales improved, both in volume and unit realisation. The stock position too is now at a more manageable level — equivalent to two months production. The results for six months also include retrospective adjustments in the retention price of fertilisers, but at a lower level than in the previous year.

For the current year, IEL has been given an allocation of 5,31,000 tonnes of fertilisers which roughly accounts for 88 per cent of the total IEL's capacity. Mr. Sen Gupta says IEL's fertiliser division is capable of producing at about 94 per cent capacity and selling almost the entire production without much difficulty provided the weather god is kind.

In other business areas, Mr. Sengupta says, the volume of sale and prices are generally higher with the exception of polyester staple fibre, which is suffering from substantial overcapacity in the industry. Nearly two lakh tonnes of aggregate capacity against the total demand of about 80,000/90,000 tonnes. The tax provision anticipates the successful completion of the polyester staple fibre expansion project within the extended fiscal period announced by the government.

There are several other reasons why the IEL management is optimistic about the company's future. First, cost control measures have been introduced. For example, as the IEL chairman

AVAILABLE AT MOST COMPETITIVE RATES :

Methyl Paralen I. P.
Propyl Paralen I. P.
Sodium Methyl Paralen B. P.
Sodium Propyl Paralen B. P.

AGENT FOR OUTSIDE GUJARAT IS INVITED.

NEBULA PHARMA PVT. LTD.

408 Relief Shopping Centre,
NR. G.P.O., AHMEDABAD-380 001.
Phone :— 23513,20307,469729.

points out, the economy drive being initiated in several divisions are likely to result in substantial cost saving. Next, the pruning of uneconomic activities. For example, the disposal of the LDPE plant at Rishra in West Bengal is being considered. Third, venturing into new areas and expanding the present activities, the IEL has joined hands with NALCO Chemical Company of the United States and floated a new company to produce FM 21 membrane cells replacing diaphrgam cells and mercury cells in the manufacture of caustic chlorine. The new unit is being set up in the company's present location at Risnra at an investment of Rs. 10 crores.

The company's pharmaceutical division located at Ennore, near Madras, is to soon produce atenolol.

The bulk drug for the top selling cardio-vascular drug, Tenormin, currently being manufactured by ICI, PLC, UK.

The expansion of the Bombay fibre plant has been undertaken at an estimated cost of Rs. 55 crores to enhance the capacity of the plant from the present 10,000 TPA to 30,000 TPA. The sale of the entire 30,000 tonnes, it is hoped, will be possible by 1991-92.

The capacities of the plant and chemical units located at Rishra and Hyderabad too are being increased. The government approval for 47 per cent capacity expansion of the Hyderabad unit has been obtained. Also new product lines are being introduced in these units.

For example, there is a proposal to produce, for the first time in the country, a specialised paint to be used by leather goods manufacturers.

FICOM ORGANICS

Ficom Organics has announced an interim dividend of 18 per cent for the 18-month period ending March, 1989. As the financial year will be for a period of 18-month, this is the first interim dividend and will absorb Rs. 23.13 lakhs. For the previous financial year ended September, 1987, the company paid a dividend of 30 per cent (10 per cent interim and 20 per cent final). The directors feel that in view of the extension of the accounting year, they may consider payment of second interim dividend at appropriate time a ter completion of the second s months ending September, 198

The company is taking up plan of expansion of its alk phenols production capacitie Currently the installed capaciti of DDP and NP, both develo ed in the company's own R& centre, stand at 5,500 tonnes p annum. Keeping in view the f ture demand of both these pr ducts in India and to cater to th export markets, the productio capacities of both these pr ducts is envisaged to be incre sed by an additional 2,000 to nes per annum. The plant is des gned in such a way that the would be adequate built-in faci ty and flexibility for manufactu ing additional range of alkyl ph nols in the coming years bas on the likely demand for them

A new composite unit is bei set up for the additional capac of 4,000 tonnes per annum completion of which the compa will have a combined capacity 9,500 tonnes, making it the la gest alkyl phenol manufacturi unit in South East Asia. T expansion project is planned be completed within one ye and the project will be financ

D.E.G.
M.E.G.
I.P.A.
PHENOL
OCTANOL
SORBITOL
SALICYLIC ACID
FORMIC ACID
CYCLOHEXANONE
PROPYLENE GLYCOL
ANILINE OIL
CELLOSOLVE
OCTOIC ACID
NAPTHENIC ACID
TITANIUM DIOXIDE
CELLOSOLVE
ZINC HYDROXIDE
COPPER SULPHATE
COBALT SULPHATE
COBALT OXIDE
MANGANESE SULPHATE
AMMONIUM MOLYBDATE
NICKEL CATALYST SPENT
COPPER ASH

Please Contact :

Chandra Dyechem

Room No. 6, Ist Floor, Khimji Meghji House, 11/15 Isaji Street, Vadgadi,
BOMBAY-400 003.
Tel. : 332792/348543/339997

internal accruals and term
s. The acrylamide and D
yl glycine project of the
pany are making satisfactory
ress.

he company is increasing its
ort thrust of malathion tech-
l and expects to achieve re-
l exports in the current year.

RYANA PETRO PLANS RS. CR EXPANSION

laryana Petrochemicals Ltd
L) is embarking on a Rs. 50
e expansion programme. The
ustrial Finance Corporation of
a has already appraised the
16.95-crore first phase ex-
sion of production of polyes-
yarn from 3000 tonnes per
um to 7000 tonnes, and to
ersify part of production to
ght trilobal yarn (bty). which
rs import substitution and
n added value.

According to Cdr R.S. Aggar-
, a former guidance systems
ineer with the Indian navy
l the promoter of the com-
y, implementation of the first
se of the expansion and di-
sification programme is near-
completion. Production of
house texturised unit will com
nce within a month while the
Y project and spinning capa-
expansion will be completed
December 1988 and 1989 res-
ctively.

Cdr Aggarwal claimed that the
pacity utilisation level would
up to 90 per cent even with
expanded capacity. The tur-
ver is expected to scale Rs.
crores in 1989-90 with the
mpletion of the first phase ex-
nsion.

Backward integration is to be
dertaken in the second phase
the expansion plan. A Rs. 25-
pre polycondensation plant with a capacity of 15,000 tonnes per annum is envisaged. Plans are to manufacture textile grade chips only to the extent of the company s own spinning requirements. The rest of the production will be of bottle grade chips "The idea is to develop an assured raw material base for downstream manufacturing in order to be free from the vagaries of market forces", he added.

To coincide with the manufacture of chips, the spinning capacity is sought to be enhanced at a cost of Rs. 10 crores. This phase of expansion is likely to be undertaken soon after the first phase goes into operation.

Meanwhile, HPL doubled its turnover in 1987-88 (year ending March) to Rs. 27.33 crores from Rs. 14.73 crores and production at 2670 tonnes was near-optimal (installed capacity is 3000 tonnes) as against 1547 tonnes in the previous year. The net profit (pre-tax) stood at Rs. 1.10 crores as against a loss of Rs. 1.77 crores in the previous year.

The company's product is well accepted in the market with 50 per cent of its production feeding the requirements of Garden Silk, the premium saree manufacturer. According to Cdr Aggarwal, the company's POY fetches the highest prices among all others in the market. Inventory levels are at a mere one day's production.

However, on account of a reduction in excise duty and limited scope in expanding production (because of the capacity ceiling), the turnover is not expected to go up substantially in the current year. In fact, a fall in value of sales is a possibility. But profitability is expected to make a sharp jump to around Rs. 4.5 crores. The reason for this being higher value addition and, hence, profits on account of downstream projects like texturising and BTY. Dividend payment has been envisaged in its project report to its institutional financiers. The expected dividend would not be less than 10 per cent, it is learnt (on a pro-rata basis on enhanced capital after the proposed right issue).

The sources of finance for the first phase expansion is Rs. 8 crores as term loans, Rs. 1.25 as bank loans, Rs. 2.24 as foreign currency loans, internal accruals, of Rs. 3.35 crores and a right issue of Rs. 2.11 crores. The right issue is expected in the ratio of two shares for every five shares held and will be at par.

The company has a share capital of Rs. 5.25 crores of which 40 per cent is held by non-resident Indians, the promoter's stake being only 10 per cent while Haryana State Industrial Development Corporation holds another 10 per cent. The public share is distributed widely among 25,000 shareholders. The public issue in 1985 was oversubscribed by as much as 25 times. Commercial production started in April 1986. After an initial bad patch on account of production problems and stagnant market after the withdrawal of anti-dumping duty, the company made a smart recovery in the second year of production.

The share price of the company which remained around par value in the last one year recovered sharply in the current bull phase of the market. No problems are anticipated in selling the right issue, it is claimed.

SHRISHMA CHEMICALS

According to Mr. S. N. Chaturvedi, managing director of Shrishma Fine Chemicals, the company has suffered because of a steady erosion in projected demand. Being a new plant it has a larger capital outlay and larger capital-oriented costs. Since it was developing an export market for a non-traditional item such as aspirin, it had to suffer. It has already exported about 200 tonnes of aspirin valued at about $500,000 in 1987 and is planning to export at least 1,000 tonnes in the coming year earning about $3 million.

Mr. Chaturvedi has said with the availability of raw materials and the incentives provided by the government, the company has been able to achieve 100 per cent capacity utilisation.

Although the performance in 1987 was not good the outlook for the current year is considered quite good. For 1988 the turnover is estimated at Rs. 20 crores. The company has been granted a licence for producing eighteen formulations. It has also received a licence for producing 1,000 tonnes per annum of paracetamol. A technical collaboration agreement has been signed with Dr Marie Biazzi SA, Switzerland for producing paracetamol. HOC will supply to the company 200 tonnes of phenol against advance licence for its exports.

The company has signed a memoradum of understanding with Scientific Instrument and Technology Corporation, New Jersey (U.S.A.) for exporting 1,000 tonnes of acetyl salicylic acid (aspirin) during the current year. With all the plant reaching full capacity, the turnover is expected to rise to Rs 35 crores in 1989.

Mr Chaturedi feels that since domestic demand for aspirin is unlikely to rise considerably in the coming years, aspirin manufacturers should be prevailed upon to confine their domestic sales to 55 per cent of the production capacity and export the balance 45 per cent to hard-currency areas. This will bring in $ 5 million every year.

In Japan, there is an existing mechanism whereby the government effectively imposes manufacturing restrictions on the various manufacturers of a particular product so that the market is equitably shared and no company stands to lose significantly. Mr. Chaturvedi feels that this mechanism is more appropriate for a country like India where capital-related costs are very high and capital itself is scarce and expensive.

DHARAMSI MORARJI CHEM.

The Dharamsi Morarji Chemical Co. Ltd., will be shortly changing its product-mix by taking up the manufacture of more of chemicals and less of fertilisers. The company has decided to change the ratio of production of fertilisers and chemicals to 40:60 from the present level of 62:38.

According to Mr. R. M. Goculdas, chairman, the company would be commercialising some new products which were developed by R&D division of the company.

Talking to shareholders at the annual meeting in Bombay on Thursday, he said that the company had obtained an industrial licence for the manufacture of 750 tonnes of benzene sulphonyl chloride and 300 tonnes of thiophenol.

The company has also decid to take up the manufacture ediphenphos, a fungicide wh is being currently imported large quantities. The compa has already received certific of registration for the fungici under the Insecticides Act.

All the three products ha very good export potential al the chairman said.

The company has taken effe tive steps to increase the produ tion of 65 per cent oleum a liquid sulphur trioxide. To me the increasing demand for ch rosulphonic acid, the company also implementing expansion chlorosulphonic acid plant at K mhari to produce 16,500 tonn

On the fertiliser front, M Gokuldas said that with the tim ly release of subsidy and revisi of retention price of fertilise the liquidity crunch of the co pany could improve in the cu rent year. About the working the company, he said that t company would show a remar able improvement in the curre year over the previous year.

ALKYL AMINES

Alkyl Amines Chemicals Lt has been faring better in the cu rent year with company's sal during the first five (Jan.-M 1988) amounting higher at R 3.43 crores as compared to R 2.60 crores in the correspondi period last year. Production amines is also higher at 631 to nes (494 tonnes).

With the commissioning of b lancing equipment for ethylami es in January last, there is fu ther improvement in the produ tion and sales of triethylamine.

FOR YOUR REQUIREMENTS OF

SODIUM LAURYL SULPHATE

30% LIQUID & 90% POWDER

SODIUM LAURYL ETHER SULPHATE

30% LIQUID

TOOTHPASTE, COSMETIC, PHARMACEUTICALS
& DETERGENT INDUSTRIES

CONTACT MANUFACTURERS

INTERMEDIATES & CHEMICALS

S-77/1, M.I.D.C., BHOSARI, PUNE - 411 026
PHONE: 87476

For Your Requirement in Bulk Quantity

AMMONIUM CHLORIDE I.P.
AMMONIUM CHLORIDE (Battery Grade)

Please Contact Manufacturers:

M/s. INDIAN CHEMICAL MANUFACTURERS

129/7, G.I.D.C., Nandesari - 391 340, Dist. Baroda

Associate of

DIVYA CHEMICALS

BOMBAY

For Your Requirements of:

COPPER SALTS (Re-introducing)

COPPER SULPHATE
COPPER CHROMATE
COPPER ACETATE
COPPER NITRATE
COPPER CARBONATE

MERCURY SALTS:

MERCURIC CHLORIDE
MERCURIC OXIDE
MERCURIC ACETATE
MERCURIC SULPHATE
MERCURIC IODIDE
MERCURIC THIOCYANATE
MERCURIC NITRATE

LEAD SALTS:

LEAD ACETATE
LEAD PEROXIDE
LEAD NITRATE
LEAD CHLORIDE
LEAD PHOSPHATE

TARTARATES:

SODIUM POTASSIUM TARTARATE
AMMONIUM TARTARATE
SODIUM BITARTARATE
&
ALL TYPES OF CHROMATES
PHOSPHATES, STRONTIUM SALTS ETC.

Please Contact Manufacturers For Competitive Prices:

L. S. Chemicals & Pharmaceuticals

10, Kotkar Industrial Estate, Off: Aarey Road, Goregaon (East), Bombay - 400 063
Tel.: Factory: 692391 Resi.: 625735

Rishabh Brand Refined Menthol Crystals

OIL ANISE
— Pharma Grade

OIL CLOVE
— Pharma Grade

OIL MENTHA/PEPPERMINT
— Pharma Grade

OIL MENTHA PIPERITA
— Tooth-Paste Grade

OIL SPEARMINT
— Tooth-Paste Grade

OIL LAVENDER 40-42%
— Perfumer Grade

OIL PATCHOULI
— Perfumer Grade

ALSO

Iso Eugenol Linalol Natural Geraniol Super And Several Others

Please Contact Manufacturers:

RISHABH

G-22, Lawrence Road,
NEW DELHI - 110 035

In Bombay Please Contact:

Saraswati Enterprises

Phones: 230383/5616582 (R)

For your Requirements of:

ACETATE □ CARBONATE
CHLORIDE □ CHROMATE □ DIOXIDE
HYDROXIDE □ NITRATE □ OXIDE □ PHOSPHATE
SULPHATE Etc.
— OF —
CADMIUM □ COBALT
COPPER □ LEAD □ NICKEL
MERCURY □ STANNOUS (TIN-II) □ ZINC
AND OTHER INORGANIC CHEMICALS

AMMONIUM BI CHROMATE TECH, PURE & EXTRA PURE
POTASSIUM BI CHROMATE A.R. AND
POTASSIUM CHROMATE.

AJAY CHEMICALS

Bombay Sales Office
A-1, Sahyadri, Pandurang Wadi,
Goregaon (East), Bombay-400 063.
Tel. 6882232 □ 6882614

Regd. Office & Factory
Plot No. N-11, M.I.D.C.
KUPWAD-416 425
Dist Sangli, (Maharashtra).

Print De

• E.D.T.A. ACID 98%
• Di – Sodium E.D.T.A.
• Tetra – Sodium E.D.T.A.
• Ferric E.D.T.A.
• Mono – Calcium –
– Di – Sodium E.D.T.A.
and other Salts of E.D.T.A.

ASSOCIATED CHEMICAL INDUSTRIES

ghlights in Chemical Technology (Part 2)

ERCONDUCTOR SPIN-OFFS

small research and develop- company in Sacramento, Cal- a has taken out patents on a ss for turning high-temperature conducting materials into a nercially useful product.

Company, Ceracon, hopes to ts first licensing agreement for process with a firm in USA y. The company estimates that arket for such products is worth million worldwide.

w superconducting materials, vered since January 1986, at temperatures of up to 100 (-173°C). To be commercially , superconductors must be d into, say, busbars for mag- r thin films for electronics. The market for thin films alone is ated at around $500 million.

rently several methods exist ompacting powdered com- ds like the superconducting hics, into industrial products. fficulty is that these methods lace at high temperatures and ures for up to 24 hours in some . The high temperatures affect hysical nature of the com- , which then loses its super- cting properties.

acon researchers have found to compact the superconduct- ramic into industrial products ry high pressures typically en 690 and 830 kilopascals ared with 240 to 280 kilopas- or today's processes. As a the process take only a few nds. The material is still ed to high temperatures, but much shorter time, and the ceramic does not lose its superconductivity.

Robert Shelton, chairman of the Physics Department at the University of California (Davis Campus) will provide Ceracon with the superconducting material yttrium-barium-copper oxide. Peter Klavin, a member of the Shelton group reports that the preliminary results of tests on the ceramic material produced by Ceracon are very good. Besides retaining its ability to conduct electricity without resistance at temperatures upto 93 Kelvin, the material looks as though it will have a high critical current density.

The critical current density is the point at which an increase in current density would make the material lose its superconductivity. Shelton's laboratory will be checking the critical current density of Ceracon's new ceramic's in the coming months. The development of superconducting ceramics is a classic example of University-Industry collaboration in high-tech industry in USA. (*New Sci.* 3/5/88, p. 39).

KAO CORPORATION'S JOINT VENTURE IN MALAYSIA FOR PRODUCTION OF FATTY ALCOHOL & GLYCERIN

Malaysia's Palmico Holdings Berhad and Kao Corporation of Japan have concluded an agreement to invest M$180 million ($70.3 million) in a new complex to produce methyl ester, fatty alcohol and glycerin at Palmico's oleochemical facility, at Pruf, Malaysia.

This joint venture will be called Fatty Chemical (Malenpre) in which Palmico will hold 30% and the Japanese firm 70%. The company has obtained pioneer status from the authorities.

Due on stream in 1990, the plant will use palm oil/palm kernel oil, supplied by the Palmico subsidiaries Palmex Industries, Palmco Oil Mill and Palmco Haya, as its primary raw material and methyl alcohol which will be imported from Sabah. The plant will use process technology developed in Kao's plant in Japan and the Philippines.

Methyl esters are the building blocks of the detergent industry. They are hydrogenated to fatty alcohols, which are sulfonated to become basic detergent raw materials. Sulfonated methyl esters are becoming increasingly important as detergent raw materials in their own right. Most of the chemicals produced will be exported to Japan for further processing by Kao and the rest to other markets.

Glycerin is a valuable by-product of Kao's methyl ester process, used in paints, explosives, pharmaceuticals and cosmetics. (*ECN*, 4/4/88, p. 22).

SPRAY-DRIED PRECIPITATED SILICA TO BE PRODUCED IN INDIA UNDER DEGUSSA KNOW-HOW

West Germany's Degussa has teamed up with the Indian Bhartia group to produce spray-dried precipitated silicas in India. The companies have set up a joint venture 'Insilico' in which they each hold 40% share, with the remaining 20% traded on Indian capital markets.

Insilico is setting up a DM 50 million ($30 million) plant to produce 7000 tonnes/year of spray-dried si-

licas, used as reinforcing fillers in rubber compounds, fillers for pesticides and as auxiliary materials in pharmaceutical and cosmetics.

The plant will be built at Gajraula, in Uttar Pradesh and is slated for start up in early 1990. Degussa claims to be the world's largest manufacturer of precipitated silicas and silicates. (*ECN*, 4/11/88, p. 4).

EXXON CHEMICALS UNVEILS AN AROMATICS-FREE HYDROCARBON SOLVENT

Exxon Chemicals has recently introduced a hydrocarbon solvent which it claims is less harmful to health and the environment as it contains no aromatics. Dubbed Nappor-10, the new solvent is a heavy naphonic solvent. It is reported to have sufficiently powerful solvent capacity to be used as an alternative to aromatic or chlorine-based products.

Applications are seen in paints and coatings, cleaning fluids, adhesives, pesticides and wood treatment products. Exxon claims to be the only producer and supplier of this type of solvent. (*ECN*, 4/11/88, p. 19).

BRITISH TECHNOLOGY GROUPS SIGNS AGREEMENT WITH SUMITOMO FOR LICENSING BRITISH TECHNOLOGIES IN JAPAN

The British Technology Group (BTG) exploits technologies, applies for patents and protects those patents on behalf of Universities and individual inventors in the UK. Recently, the BTG has signed an agreement with Sumitomo that will allow British inventions to be more widely licensed throughout Japan. It has made the trading house Sumitomo the sole agent for licensing selected technologies to other Japanese companies.

Giving a large commercial organization access to British inventions may cause concern. But the BTG reports that Sumitomo has agreed non-disclosure agreements and no inventions that they see but do not want will be at risk.

The Sumitomo deal is a first step towards a two-way deal in technology transfer with Japan. The BTG is hoping to be able to license technology from Japanese companies and Universities to companies based in Britain.

The BTG already earns 70% of its money from licensing patents to overseas companies. Japan is its second biggest market after the USA. The agreement is worth millions in pounds sterling.

The BTG generally splits the money from licensing deals between itself and the individual or university that originated the technology. Existing BTG licensees in Britain will also benefit, if they have knowledge that is associated with the patents which the BTG licences to Japanese companies through Sumitomo, that knowledge can also be licensed in parallel with the patent. (*New Sci.*, 2/25/88, p. 24).

A CHEMICAL HANDBOOK ON MAGNESIUM CHLORIDE FROM DOW CHEMICAL

A new 16-page four colour handbook from the Dow Chemical Company describes the technical and formulation properties as well as handling and safety considerations for magnesium chloride. The handbook is said to provide a useful reference source for magnesium chloride users in the textile and other industries. Dow Chemical is a leading manufacturer of magnesium chloride. Dow's magnesium chloride is available in pulled as well as liqu forms. They are reportedly designe to make the magnesium ion eas to-use and economical, consiste with the user's needs. (*Am. Dyest Rep.*, 2/1988, p. 45).

COMPETITION IN ADVANCED CERAMICS BETWEEN USA AN JAPAN INTENSIFIES

High mechanical strength at hi temperatures and attractive prop ties, including wear and corrosi resistance, stiffness and low densi are expected to promote the use crystalline non silicate ceramics applications ranging from auton bile engines to dental implants.

A recent study by Business Co munications Company (BCC) Norwalk, Conn, USA, foresee intense competition between U and Japan in advanced ceram The study cites the example Japan, where an Advanced Cera ics Association was founded in early 1980's to promote early c mercialization. BCC reports US-based business will nee boost from both the government academic for meeting the challe from Japan. The first step in direction was the formation of USACA (US Advanced Cerar Association) in 1985. More rem to be done, however, if the US to achieve greater parity with Ja Currently, reports BCC, Japan l in the world's advanced cera business and has commercia many applications which are s developmental phases here ir USA.

Breaking the US market int major components, BCC sees strial applications and wear par the largest outlet for the mate with $79 million in sales recor 1987. By 1990, demand s reach $150 million. Cutting tool resent another important end

ting for $32 million in 1987, ected to reach $92 million by *CMR*, 2/1/88, p. 20).

'EL PLASTIC MATERIAL SORB HYDROGEN LOPED

existing systems for absorb- drogen are based on hydro- combination with airborne n to form water, which itself lamage mechanical parts. Githom of the Chemistry of ic Materials Division at the a National Laboratories uerque, New Mexico) has ped a novel plastic material moves hydrogen without form- ter.

new material is a sandwich end of three polymers (polys-, polybutadiene and polysty- again) in combination with a st that contains iridium (the ee catalyst).

hydrogen absorber will have ial for several applications. en can generate explosions, ge electrical and optical com- ts and make metals brittle in ng from television picture to nuclear-powered subma- (*New Sci.*, 3/24/88, p. 35).

NESE BID FOR WORLD ERSHIP IN ADVANCED RIALS (CERAMICS & MERS) AND MERCIALISATION OF ECHNOLOGY

an has launched its bold ial programme in the current le and has announced its on to achieve world leadership h high-tech areas as advanced ials (ceramics, polymers) and mmercialisation of biotechnol-

nichi Yoshida, President of Japan Chemical Society, threw down the gauntlet to the world chemical industry in a recent address. He said "If I look at the history of the world's chemical industry, the nineteenth century was the age of Germany (with the synthetic dyes), the 20th century has been that of the USA, whose polymer chemistry products like nylon have spread through the world. But now, we see signs that their days are over. So, we should make the 21st the century of Japan. My ambition is to make the coming century, the age of the Japanese chemical industry".

In the Japanese chemical industry, average productivity is about $500,000 per employee, compared with $125,000 per employee in the US chemical industry. Use of robots, a decentralised structure and membership in a 'family' of companies gives each affiliate timely access to R & D results and other expertise.

During the past few years, Japanese chemical companies (with some support from the government) have significantly increased their commitment to R&D, more than matching the 50% increase in R&D made by US companies over the past ten years. Very little of the Japanese R&D budget goes to defence spending, in contrast to the USA where about 75% of all R&D expenditure feed defence or related business.

The Japanese chemical industry is taking initiatives to build the country's capabilities in basic science and usher in what they are calling a revolution in electronics, advance materials and biotechnology for the 21st century. In 1987, Japan's MITI initiated the "R&D project of basic technologies for future industries" to seek the lead in advanced materials.

Japan upgraded the polymer technology it licensed from the USA during the 1950's and 1960's and licensed the improved technology back in the 1970's. For example, UCC and Borg Warner, US companies that pioneered the development of carbon fibres and ABS (acrylonitrile-butadiene-styrene), now appear to be dependent on Japan's Toray Industries for these products. In the early 1980's, Japan began to establish well-equipped polymer R & D centres and even now continues to borrow and upgrade new polymer technology that the US has been unable or unwilling to commercialise.

Japan's R&D programmes are geared to tailor polymers for specific purposes such as high strength, high modulus, engineering resins and matrices for composites, membranes for gas and liquid separations, biopolymers and materials for electronics. In the USA in recent years polymer research and education have suffered neglect.

Japanese industry today typically funds R&D for advanced ceramics up to several times the value of its government contracts. A report from the National Academy of Sciences reports, that since 1982, a virtual "ceramic fever" has swept Japan. Japanese production of new ceramics is expected to grow by about 500% by 1990.

It is claimed that Japan has 10:1 lead in patents on advanced ceramics for electronic applications and a 20:1 lead in ceramics for structural applications. And this is in a newly emerging technology in which the USA is making a concerted effort.

Coming to biotechnology, the world market in biotech products is estimated to reach $100 billion. Japan is expected to offer the US stiff competition to biosensors for the medical market and already poses significant competition in cell culture technology. Japan is now fourth in

the world and gaining in protein engineering and is scaling up its lagging effort in r-DNA technology.

The USA still leads the world in R&D as it has since World War II. Japan is second and is watching closely as European R&D makes a come back. The USA and Japan send about the same proportion of their total R&D budget on basic research. Surprisingly, West Germany spends twice as much on basic research. The challenge is to keep the lead in R&D in an increasingly competitive climate. (*ECN*, 4/12/88, pp 12-13).

A SYNTHETIC SILICA FOR RUBBER COMPOUNDING DEVELOPED BY PPG INDUSTRIES

PPG industries has developed a proprietary brand of synthetic silica under the trade name 'Hi-Sil ABS silica'.

This specialised silica is designed specifically to convert liquid chemicals such as ester and resin plasticizers and bonding agents, into free-flowing powders for introduction into rubber compounds.

Hi-Sil ABS silica is produced under rigid control to ensure consistent structural uniformity from lot to lot. The silica has high absorption capability, making it very cost efficient and a higher bulk density than mined products, so that less material is required.

Key physical properties of the material are uniform, spherically shaped particles. It is structurally amorphous and highly porous.

It has oil absorption of 285 to 315 $cm^3/100$ gm; bulk density of 7 to 9 lb/ft. with neutral pH and it is chemically inert. (PPG Industries, 1, PPG Place, Pittsburg, PA 15272, U.S.A.).

ROCHE STEPS UP NUTRITION R&D

Societe Chimique Roche spending FF100m ($17.7m) c new research centre for animal r tion to be located at Village-N France. The company already duces vitamins, carotenoids, various premixes for the feed in tries at the site. Roche says it logical step to build the new res ch facilities at the existing Als plant particularly as, the comp claims, France is the most impo country in the agricultural sect Western Europe. Development targets include products w improve the breeding and qual domestic animals, give a bala nutrition and good general h standards. Quality and long stability of feed mixes will als studied. These studies will be ducted in small livestock, poultry and later on alsc fish.

NOW
With Most Competitive Rates:
SOFTNERS - 100%

100% Reactive SOFTNER - C
100% Cationic SOFTNER - HCS (Filament Property)
100% Non Ionic SOFTNER - NON IONIC

Better Colour, Better Performance than currently available in the Market

SPECIAL RATES FOR BULK BUYERS.

Manufactured by:

C. RAJA & COMPANY

5, Dev Chhaya, 120, Keluskar Road, Shivaji Park, Dadar,
BOMBAY 400 028.
Tel. 464351/453300

Chemicolour

For your imports of:

ORBITOL 70% USP	PARAFORMALDEHYDE	THEOPHYLLINE ANHYDROUS
EXTROSE MONO/ANH.	LACTOSE BP/USP	PHENOL BP/USP
RANGE OIL	PENTAERYTHRITOL	SOYALECITHIN
ARTARIC ACID BP/USP	SODIUM FORMATE	MICROCRYSTALLINE WAX
MONO SODIUM GLUTAMATE	BASIC CHROME SULPHATE	HYDROGEN PEROXIDE 50%
I PHENYL OXIDE	SODIUM BICHROMATE	SULPHADIAZINE B.P.
MANNITOL	EPHEDRINE HCL/PSEUDO	SULPHADOXINE B.P.

Please contact for most competitive rates

CHEMICOLOUR INDUSTRIES LIMITED

302, T.V. Industrial Estate, Sudam Kalu Ahire Marg, Worli,
BOMBAY 400 025.

elephone: 4930103 Gram: 'KEMIKOLOR' Telex: 011-71223 CIL IN

Tel: Resi: 4121250/4125075
Off: 273596/463975
Fact: 27 Collem, Goa

or Quality Aroma Chemicals like Geraniol, Citronellol, Citronellal, Ex Citro-ella Oil, Geraniol Ex Palmrosa, Linalool, Methyl Benzoate, Isoamyl alcohol Esters and other aromatic chemicals

Contact Manufacturer:

Sugandha Enterprises

ffice:
69-B, Vagdevi,
enapati Bapat Marg,
lahim, Bombay - 400 016
elex: 76521 SVPC IN

Farm & Factory:
Pikle Wadi,
Collem
Goa - 403 410
Telex: 194-261 SVPC IN

For Competitive Price & Best Quality:

GLYCEROPHOSPHATE B.P.C. 50% Soln.

CALCIUM-D-SACCHARATE Int. Ph.

NIKETHAMIDE I.P.
SODIUM IODIDE I.P.
IODOFORM N.F. XII
POTASSIUM IODIDE I.P.

Please Contact Manufacturers

PROCESS CHEMICALS COMPANY

9, Old China Bazar Street, 'Sharma Market', 5th Floor, Calcutta - 700 001.
Phone: 26-8943/778242 Cable: 'GLYPHOS'
Phones:- Bombay: 6426009/6405291; Delhi: 234654/231018; Jaipur: 69246; Madras: 564568

PROPYLENE GLYCOL USP
EPICHLOROHYDRINE
PARAFORMALDEHYDE 91 & 96%
DIETHYL MALONATE
TWEEN-60
HYFLOSUPERCELL - USA
P.E.G. 4000 & 6000
STYRENE MONOMER
ROSE CRYSTAL
ISOPROPYL CHLORO ACETATE
GLYCERINE USP
LACTOSE IP/BP
POLYPROPYLENE
TITANIUM DIOXIDE RCR2
BUTYL CELLOSOLVE
N. BUTANOL
DIMETHYL SULPHOXIDE
METHYLENE CHLORIDE
PARA CRESYL PHENYL ACETATE
METHYL CHLORO ACETATE
MANNITOL USP
MELAMINE
BETA PICOLINE
PHENOL USP
CYCLOHEXANONE
TUNG OIL -- CHINESE
DIMETHYL FORMAMIDE
SOYA LECITHIN
CYANAMIC ACID
TRICHLORO ETHYLENE

OFFERING FROM READY STOCK THROUGH EXPORT HOUSE

CHEMO INDIA

24, Jambulwadi, Room No. 47,
1st Floor, Dhobitalao,
Bombay 400 002.

Tel.: 313412/258974/316166
Gram: SOLVCHEM
Telex: 011-6134 KEMO IN

Available Directly From Manufacturers

EDTA / NTA & its Salts
CHELATED ZINC - Min. 12%
CHELATED IRON - Min. 12%
DTPA -- Na_5
FERRIC SODIUM EDTA (Pharma/Photo Grades)
FERROUS FUMARATE I.P.

Note:
Our products can replace Metaclaw/Chelashok/ Acinol/Superquest/Sequesterene/Trilon/Versene Brand Sequestering Agents.

AVA CHEMICALS PVT. LTD.

5B/62, Mittal Estate, Marol,
Bombay 400 059
Phone: 6365740/6365741/6326202
Gram: NEW GENER
Telex: 011-72398 SOC IN

WITH *Bhagat's* MINT FLAVOUR YOUR PRODUCT WILL MINT WELL

Bhagat Fine Chemicals are wellknown for quality **Menthol Crystals and mint oil** varieties for over a decade. We cover total spectrum of users of these products -- pharmaceuticals, dentifrices, cosmetics, confectionery, flavourings. Bhagat Fine Chemicals develop custom made mint oil varieties and mint flavours to nosy customers' specific requirements. Our clientele includes major consumers and flavour houses in India as well as in developed countries.

Please write with your requirement details to:

Bhagat Fine Chemicals Pvt. Ltd.

Regd. Office: 164, Sitaram Podar Marg, Bombay-400 002.
Phone: 316928, 297009. Gram: Pure Pudina. Telex: 011-5356 BFCL IN.

BOMBAY - DELHI - BHUTAN
Branches/Agents: Madras - Calcutta - Moradabad - Ludhian

DO YOUR PRODUCT A FAVOUR....
USE BHAGAT'S MINT-FLAVOUR

Technical Innovations in Recycled Rubbers

S.S. AZAD
S.S. Azad & Associates, Rubber Consultancy Services, Bombay 400 051.

(Continued from 7th June 1988 issue)

BBER SCIENCE AND TECHNOLOGY -- IVITY IN INDIA

kground Information

ith a very modest beginning as early as 1920, the an Rubber Industry has acquired a very prominent tion in the national economy of the country. This egic industry has proved vital to the needs of the nomy both during the peace time as well as during time exigencies.

e magnitude of the Indian Rubber Industry can be ed from the fact that it has within its fold, 12 major tyre units: with the sanctioned capacity of 00,000 of tyres and tubes with an annual turn over s. 1200 crores.

e medium scale range has about 150-200 units ufacturing a wide range of products which meet the ting national and international standard specifica-, for a wide range of end uses such as defence, port, railways, medical, engineering, industry and ulture etc. The small scale industry consists of) units manufacturing as many as 35,000 individ-ubber items and competing both in the internal and nal markets with the well organised giants on the nand and on the other, with the superior skills of edium scale units.

e Indian Rubber Industry gives direct employment out 2 lakhs people and the annual turn over of the try is estimated to be about Rs. 3,000 crores. This would be a determining factor that the industry has red self-sufficiency more or less in each aspect lability of natural and synthetic rubbers, rubber icals, synthetic yarns and fabrics and other aux-s and accessories with mariginal requirements for ic type of synthetic rubbers and chemicals.

ia is the third largest country in the world consum-atural rubber -- next to USA and Japan -- China s to be fast developing in its achievements in their r industry. Various statistics have been reproduced paper for the general survey of the Indian Rubber try as well as its comparative position in respect of production and consumption of natural rubber and synthetic rubber.

The reclaimed rubber industry occupies a very strategic position in our developing economy and it is to be realised that with the ultimate objective of conserving energy and amidst the oil crisis, its use has got to be substantially increased. We have also estimated that with some perspective planning as much as 55,000 tonnes of reclaimed and other forms of recycled rubber could find a feasible incorporation in rubber products. The National Council of Applied Economic Research, New Delhi, was sponsored by All India Rubber Industries Association for a study entitled, "Ten Year Perspective Plan for Rubber 1980-81 to 1989-90".

Having a retrospective perception, the anticipated growth of truck production by 50%, light truck production by 100%, passenger car production by 120% and 2-wheelers by 100% during the next 5 years and with a provision of plus-minus 10%, the estimates for automobile tyre production by 1986 is 141 lakhs (as against the existing capacity of 12 units by 127.38 lakhs), 200 lakhs by 1990 and it should be reviewed in the context of planned growth of various compounding ingredients in rubber technology besides of course adequate managerial scale and work force of experienced technologists and technicians.

It would not be out of purview of this Seminar to note that some of the glaring irregularities has caused a tremendous effect in this particular field of rubber industry -- the seller's market has become a buyer's market. Some of the demonstrations of tyre dealers association against the adhoc price escalations by the tyre manufacturers has been a coincidence which should compel the ATME India to perceive the growth and prospects specially while the country is on the verge of a major automobile revolution.

The high incidence of tax structure, an absolute uncontrollable escalation in the raw materials cost and the unplanned endeavours for the highly critical inputs, such as, natural rubber and synthetic rubber have been often paraphrased as some of the glaring irregularities

-- these need attention in the ultimate interest of the industry.

The genesis of multiple collaboration and the concept of a Central Tyre Project with a Tyre Research Centre has helped India enter an era in the import of tyre technology thereby affecting considerable savings in the foreign exchange and purposeful co-ordination amongst the co-assisted Indian projects. The Indian Standard Institution is a 'P' member of ISO/TC: 45 (International Standards Organisation Technical Committee 45) on rubber and Indian technologists very actively participate in the deliberations of these international bodies. The sectional committees of ISI, PCDC:13 and CPDC:14, deal with rubber products and raw rubbers (natural and synthetic) respectively. We have formulated our own standards on practically most of the rubber products commonly manufactured in India.

Recently, the Government of India has formulated a rubber development panel -- panel 1 for tyre section and 2nd for non tyre section -- eventhough the problems for their developments are almost identical. In one of the recent meeting various sub-committees have been formulated and the emphasis should be on 3 main headings:

1. Raw-material and machinery;
2. R & D information and technological uplift;
3. Exports.

The industry estimates its growth average rate of 8% during the next 16 years.

DIFFERENT TYPES OF RECYCLED RUBBERS AND THEIR BROAD APPLICATIONS

Reclaimed Rubbers

Products made from the treatment of vulcanized scrapped tyres, tubes and miscellaneous waste rubber articles by the application of heat and chemical agents -- regeneration of original plastic stage is effected, permitting the product to be processed, compounded and vulcanized. It is de-polymerisation but combined sulphur is not moved.

Product is an essential raw-material. It has many advantages, besides, being available at an economical price. Excellent processing aid, reducing power consumption, less heat build-up and compound have greater processing safety, increased and retained tack, retarded and reduced sulphur bloom, low swelling and shrinkage on extrusion and calendering. Low thermoplasticity for extrusion and open steam curing, im flat curing characteristics.

Reclaiming of synthetic rubbers has opened fields of their utilisation in the rubber technology. prene reclaims have been used satisfactorily in prene compounds. Upto 50% nitrile reclaim has added to the nitrile compounds with improveme ageing properties. Butyl reclaim is almost near in erties to the patent polymer. It offers dimensiona bility in extrusions, lower heat build-up and im scorch safety. It retains air permeability almost ec the patent rubber. Ethylene propylene rubbers ha stability against thermal and mechanical break- The reclaimed products and butyl blends have s good promises in offering faster extrusion, lowe swell and reduced plasticity.

Silicone devulcanized has been blended upt with parent silicone to encounter the high priced r yet maintaining the mechanical properties. expensive, flucarbon polymers -- viton rubber, ar crumbs have been used back in their compou

Rubber Crumbs

Fine powder, 30-40 mesh of scrapped tyre tre been successfully used in various rubber com including tyre formulations. Grinding of rubber is intensive process. Low temperature attempt an liquid nitrogen cryogenic process of grinding ha successfully used specially for synthetic rubbe

Very fine rubber crumbs micronizing pr ground crumbs of 20 mesh have been produce ticles of less than 20mu (500 mesh) are also pr These particles retain most of the potential properties. Rubber crumbs have been direct pounded with sulphur and curatives as well proportion of (DOP) as plasticizers -- the finis duct has been used in anti-vibration pads, so footwear soles and heels, matings and hose

Treated Particulate Scrap Rubber

One of the recent development in recycling and Leighton -- have shown that every type rubber which can be ground, can now be Ground powder can be surfaced treated with li bers. Liquid rubber is compounded with cur adjust the curing rate with the compound in v mixed. Liquid polymers are applied to the surf recycled particulate rubber and the resultant dr is used in high concentration in rubber com

ground tyre scrap powder has also been effi- used in rubber compounds. Polychloroprene, EPDM particulate rubbers can also be treated in me way. It appears that the physical properties npounds containing 50% to 75% of treated par- e are sufficiently high to allow pratical use in the wide variety of moulded parts.

lcanized Polymers

of development work by primarily removing of sul- cross links is attracting attention of the technol- . Desulfurisation of rubber network could lead to evulcanisation process by using various known ods. Number of derivatives of devulcanized poly- can also be prepared by the well-known process logenation, Cyclisation, Apoxidation etc. With the bility of devulcanised rubber, it should be possi- reuse large quantity. A number of derivatives g economic utilisation can also be developed.

e use of scrap rubber as asphalt binder for roads so increase in future.

lymerized Scrap Rubber

ap rubber vulcanizate can be depolymerized using r processing oil as a chain transfer agent. The pro- may be considered as a dispersion of recovered n black in heavy oil. Partial replacement of rubber der oil and carbon black can be made by depol- ised scrap rubbers.

ESTIMATED CONSUMPTION FOR RECLAIMED RUBBER AND OTHER FORMS OF RECYCLED RUBBERS, ON THE BASIS OF END PRODUCTS

The Development Panel for Rubber Industry, which has recently been inaugurated under the Chairmanship of Mr. K.M. Philip, one of the senior most honorary member of 'All India Rubber Industries Association', has visualised the consumption of all new polymers for the year 1983-84 -- 2,95,195 tonnes, consisting of 2,09,480 tonnes of natural; 55,025 tonnes of synthetics and 30,690 tonnes of reclaimed rubber.

The estimated use of these rubbers for the production of various categories of rubber products has been visualised as in Table 1 and this speaker further anticipates that on the suggestive incorporation of reclaimed rubber in various products within tolerable working limits, should indicate a subtantial percentage increase.

Supporting Documents -- Technical Statistics and discussions

(1) Production of Natural Rubber in major countries of the World -- Malaysia, Indonesia, Thailand, India, Sri Lanka, China, Phillipines, Liberia, Nigeria, Vietnam, Brazil, Burma, Ivory Coast, Zaire, etc.

(2) World Production of Synthetic Rubber -- USA, Canada, USSR, Federal Germany, UK, France, Italy, Netherlands, Belgium, Spain, Finland, Turkey, Austria, China, Czechoslovakia, GDR, Poland,

TABLE 1

End Products	Tonnes	Suggestive % of Reclaimed Rubber	Anticipated requirements of reclaimed rubbers (Tonnes)
Tyres & Tubes	1,43,048	10 - 15%	21,457
Cycle Tyres & Tubes	40,204	40%	16,081
Retreading	15,955	10 - 15%	2,393
Footwear	32,111	25%	8,028
Belts & Hoses	18,541	20%	3,078
Latex Foam	6,912	-	-
Cables & Wires	1,622	-	-
Battery Boxes & Ebonite Products	5,194	50%	2,797
Dipped Goods	5,942	-	-
Others*	25,666	20%	5,133
	2,95,195		**59,598**

* cc. rubber goods. Automobile components, Anti-vibratory pads, Shock absorbers and other non-conventional pplications

Rumania, Japan, Australia, Brazil, India, S. Africa, Argentina, Mexico, Korea, Taiwan, etc.

(3) World consumption of Natural and Synthetic Rubbers in major consuming countries -- USA, UK, France, Germany, Netherlands, Italy, Australia, Brazil, Canada, Japan, China, India, etc.

(4) Reclaimed Rubber Production and Consumpiton in major consuming countries -- USA, France, Germany, UK, Australia, Brazil, Canada, etc.
Note: *Figures available through the courtesy of* ***'Rubber News'****, Bombay and* ***'Rubber Statistical Bulletin'.***

(5) Position of various types of Rubber -- Natural Rubber, Synthetic Rubber and Reclaimed Rubber, in India, from 1980-83.

(6) Production of Automobile Tyres and Tubes and Cycle Tyres and Tubes in India, as well as Production figures of other Rubber Products.

(7) Production figures of other related products --Rubber Chemicals, Plasticizers, Tyre Cord, Cables, Storage, Batteries, Motor Cars, Buses, Jeeps and Landrovers, Trucks, Motor-Cycles, Scooters, 3-Wheelers and finally bicycles.

REFERENCES

For an extensive evaluation of reclaimed rubber and other forms of recycled rubbers, their utilisation in rubber science and technology, the following references could be of interest to a serious student:

1. The Conversion of Scrap Rubber into a new C pounding Tool, by Fred J. Stark Jr., Arthur Leigh Rubber Research Elastomerics, Inc., Minneap MN; Don Wagner, Rubber Industries Inc., Sh pee, MN. *'Rubber World'*, August 1983.
2. Adhesives for Building Construction, by Richar Blomquist and Charles B. Vick.
3. Natural Rubber and Reclaimed Rubber Adhesi by W.C. Wake, Handbook of Adhesives, 2nd tion, Edited by Irvind Skeist, published through Nostrand Rhein Hold Co.
4. Role of Natural Rubber in Conserving Energy Materials, by E.V. Thomas, Deputy Director, Rul Research Institute of India, Kottayam, Kerala.
5. Reclaimed Rubber -- Its Development, Applica and Future, by A. Novry, Maclaren & Sons Ltd.,
6. Rubber Technology by Maurice Mor
7. Rubber Technology and Manufacture by Blow-Butterworths, London.
8. Recycling of Rubber Tyres in Asphalt Paving M ial by Piggot M.R. and Woodhands R.T., De ment of Chemical Engineering & Applied Chem University of Toronto, Canada.
9. Microwave Breakthrough in recycling by AH *Braken Journal,* D-1, May 17, 1979.
10. Science and Technology of Reclaimed Rut Rubber Chem Technology, by Le Beau, D.S. 40, p. 217-237 (1967).

POTASSIUM NITRATE

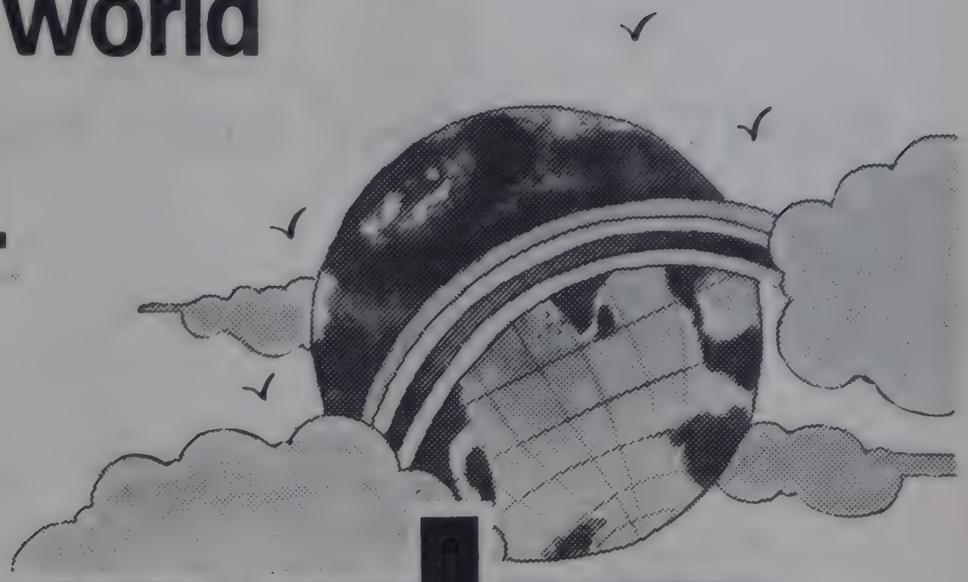
You name the specification, we have it

Contact

Akshay Chemicals

205, Kashyap Complex, Jetalpur Road, BARODA-390 005.
Telephone 325988 Gram : PONIT

Our eam is out to beautify he colourful world with new hues.



mardia

"First Export
Consignment of
H. Acid
is being flagged off
to day... under
the technical inspection
and strict supervision of
SGS
-world re-nowned inspection agency."

mardia
CHEMICALS LTD.
(Division of Mardia Group of Industries)
468/471, GIDC Phase II,
Vatwa, Ahmedabad-382445
India • Phone : 0272-876173, 876374
Telex - 0121-6582 MMI IN

For Your Requirement of:

HYDROBROMIC ACID (48% & 62%)
HYDROBROMIC GAS IN ACETIC ACID
BROMOBENZENE
N-PROPYL BROMIDE
ISOPROPYL BROMIDE
METHYL CHLORO ACETATE
ISOAMYL BROMIDE
N-BUTYL BROMIDE
ETHYL BROMIDE
CETYL BROMIDE
LITHIUM BROMIDE
ISOPROPYL CHLORO ACETATE
ETHYL CHLORO ACETATE
ISOPROPYL ACETATE
BENZOYL CHLORIDE
ACETYL CHLORIDE
CHLORO ACETYL CHLORIDE
CAPROIC ANHYDRIDE
ETHYL FORMATE
SODIUM BROMIDE
POTASSIUM BROMATE

Contact Manufacturers:

SONTARA ORGANO INDUSTRIES

OFFICE
3-A, Mangaldas Bldg., 2nd Floor,
R. No. 242, Mangaldas Road
BOMBAY 400 002.
Phone: 3155681 (O); 522207/4123313 (R)

FACTORY
Shed 16, M.I.D.C.
Chemical Zone,
AMBARNATH 421 501
Phone: 2483 (F)

For Guaranteed -- Safer Reliable Supplies of

CARBON DISULPHIDE * CARBON TETRA

in Tankers & Drums
as also Acetone/DAA/DEP/Amines/Alcohols etc. in packings of your choices
We require in Bulk Quantities

ISOPROPYL ALCOHOL (Deodorised)

METHYL ACETATE CP * ISOPROPYL ACETATE

Please Quote With Samples.

Laxmi Chemical Industries

32, S. Gandhi Marg (Princess Street), Shroff Mansion, Bombay - 400 002
Phone: 317494 (3 to 6) **Resi: 649 2637** **Gram: 'CHEMICARE'**

Milestone Industries
1013-14 Phase-IV G I D C Estate, Naroda 382 330
Phone : 810560, 812543 Gram : Mileston

milestone

IRON POWDER

(REDUCTION GRADE)

milestone

METHANOL

FIRST TIME IN INDIA
METHANOL OF 99.9%
PURITY FROM INDIA'S
LARGEST PLANT

RAMA
PETROCHEMICALS

IS PLEASED TO ANNOUNCE COMMERCIAL PRODUCTION
OF HIGH PURITY METHANOL (99.9%).
WITH THE AVAILABILITY OF 50,000 TPA FROM THIS PLANT.
THE COUNTRY HAS BECOME SELF SUFFICIENT IN THIS
VITAL INDUSTRIAL RAW MATERIAL
OBVIATING LARGE SCALE IMPORTS
THEREBY RESULTING IN SUBSTANTIAL SAVING
OF PRECIOUS FOREIGN EXCHANGE

METHANOL

ENQUIRIES ARE SOLICITED

Rama

RAMA PETROCHEMICALS LIMITED
812, Raheja Chambers, Nariman Point, Bombay-400 021. Phone: 234123, 234182,
Telex: 011-2132, 3669 RAMA-IN Grams: RAMA ENTER

CHEMICAL WEEKLY

DRUGS DIRECTORY

Reprinted Copies are now on sale.

Pages 700; attractively bound
price Rs. 200 per copy
(plus Rs. 25 for postage/delivery)

— all the information you require about bulk drugs.

— production figures; manufacturing details; licences issued; processes available; lists of manufacturers and dealers with all very conveniently indexed.

and above all PROFILES OF MORE THAN 160 BASIC DRUGS

presenting all the relevant information in a nutshell.

PLEASE CONTACT :

SEVAK PUBLICATIONS

306, Shri Hanuman Industrial Estate,
G. D. Ambekar Road, Wadala,
BOMBAY-400 031.
Phones: 4131198/4120743 Telex: 011-76053

27, Begum Sahib Third Street,
Mount Road, MADRAS-600 002.
Phone: C/o. 831808 Telex: 041-6290

Chemical News from Abroad

C BUYS GEOMATRIX, IS LATEST UK ARAMID PUTE

kzo of the Netherlands has hed agreement with BASF o. to buy back Geomatrix ems, a manufacturer of syn- ic products for agriculture. unit was sold to BASF in 5 when the West German acquired American Enka for nd $200m. The purchase pri- vas not disclosed and Akzo reluctant to release sales fig- for Geomatrix, saying that perated in a rapidly growing ket and development was at a relatively early stage.

kzo describes itself as an es- shed leader in the geotech- l field in Europe and the Far with operations in 30 coun- . The acquisition gives it opportunity to develop in two tional geographical areas, the and Canada, and is in line Akzo's strategy to concen- on high, value-added sec-

eomatrix manufactures and lops synthetic materials for stabilization, erosion control drainage. Products are ba- ly plastic-coated nylon. A firm, Akzo Industrial Sys- , has been set up in Ashe- North Carolina, to oversee Geomatrix operations.

eanwhile, Akzo has moved her step forward in its ara- fibre patents dispute with Pont. A UK court has grant- kzo an injunction against Du 's **Kevlar** for infringement s **Twaron** solvent patent h means that, in theory, the firm is prevented from selling roduct in the UK.

However, agreement has been reached betwen the two parties whereby Du Pont customers with "supply problems" can apply to Akzo which will subsequently clear imports of Kevlar. In this way, Du Pont says it will still be able to supply its UK customers and start up its plant at Maydown in Northern Ireland. The agreement runs until the year end.

SPANISH FERTILIZER PLANTS

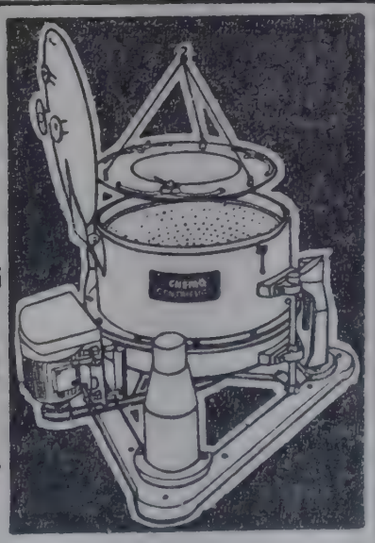
Spain's ministry of industry has released fertilizer restructuring grants for Pta22bn ($199m) frozen during the wrangling between ERT and the Cros-KIO-Torras Hostench group. The dispute put restructuring plans for the troubled Spanish fertilizers sector well behind schedule and a poor performance by the industry in 1987 led to the setting up of a new committee to present a revised plan.

Industry watchers say the plan is likely to urge more capacity cutbacks but will fall short of suggesting a single Spanish fertilizer company. The committee's conclusions, however, have not yet been made public.

Meanwhile, ERT and Cros are about to present their joint plan for merging their respective fertilizer businesses into their existing joint venture, Fosforica Espanol. Plant closures are predicted and industry rumours point to Cros' Madrid facility as a likely candidate. The 90,000 ton/year NPK plant has never operated at more than 50 per cent capacity. ERT's Montgat unit near

Introducing

CHEMO
CENTRIFUGE MACHINE
WITH
TOP RIM LIFTING ARRANGEMENT
FOR
INSTANT DISCHARGE
FOR
CHEMICAL PHARMACEUTICAL AND TEXTILE INDUSTRIES



CONTACT MANUFACTURER:
CHEMO FAB INDUSTRIES
RAM BAUG. S. V. ROAD, CHINCHOLI.
BEHIND STATE BANK OF INDIA,
MALAD (WEST), BOMBAY-400 064
Ph : Fac. : 6821401/6821695 Resi : 6821894

Agent For South India :
M/s. TECSYS,
3, Krishnappa Maistry Street.
Woods Road, Madras-600 002.
Phone : 84 97 27

Barcelona, with capacity for 120,000 ton/year NPKs and 166,000 ton/year superphosphates, also looks to be earmarked for closure as does another Cros unit near Valencia.

Job cuts are also on the cards and this threat will be used as a lever to push for more government action to obtain a "safety clause" from the EEC against imports of urea and finished fertilizers. Imports cornered a fifth of the Spanish fertilizer market last year.

The new company's Pta14bn Sagunct plant — to be shared with stateowned Enfersa — is about to be inaugurated following successful test runs. It has capacity to produce 300,000 ton/year nitrates and 400,000 ton/year CAN.

PACKER TAKES STAKE IN COURTAULDS

Australian entrepreneur Kerry Packer has made his second foray of the year into the chemicals sector by acquiring a 3.5 per cent stake in the UK chemicals, textiles and industrial products group, Courtaulds.

Last month, Packer acquired Monsanto Australia's commodity chemicals operations for an estimated $150m. Packer's latest move, thought to have cost around £50m ($94m), was carried out through a London merchant bank, Robert Fleming.

It is unclear whether Packer intends to continue building up his stake in Courtaulds or make a quick profit and sell out while the shares are buoyant.

Large volumes of Courtaulds shares have been traded in recent weeks. Potential bidders were rumoured to include Hanson Trust, Hoechst and Du Pont. But the West German firm has made it clear it is most interested in contested bids and is believed, in any case, to be seeking a smaller acquisition in the UK. Du Pont has also denied it is interested. Any bid for Courtaulds — worth between an estimated £5-2.4bn ($2.8-4.5bn) — is likely to be hotly contested.

COOKSON BOOSTS U.S. BASE WITH NEPTCO

The UK-based Cookson group has further strengthened its US operation with the acquisition for $40m of Neptco Inc, a manufacturer of specialist polymeric materials supplying mainly the insulating cable and wiring industries.

Cookson's group chief executive Michael Henderson said there was synergy between the Rhode Island-based firm and its existing US operations, "both in terms of production and marketing".

In 1987, Neptco reported pretax profit of $5.5m on sales of $32m. Cookson will make further payments for the business depending on profit levels between April 1, 1987 and December 31, 1989.

The newly-acquired company will be merged with Cookson America's plastics sector. Henderson said Neptco operated in a specialized niche area and, as part of Cookson, would look to exploit opportunities in new geographic areas, particularly the Far East.

GADOT DEAL AGREED

At its recent board meeting Israel's Haifa Oil Refinery, as expected, decided to waive its right to first refusal of the shares in Gadot Petrochemical Industries owned by the Jchannanoff group.

The decision needs sanction from the interministerial government economic ministers committee before becoming final. It effectively seals the recent deal between industrial giants, Clal and Delek, for them to acquire a 26 per cent stake each in Gadot.

Once the new ownership of the chemical company is clarified, its management is expected to take a new look at plans for expansion. Notably, a new styrene plant and expansion of citric acid and aromatics facilities have been under consideration.

BORREGAARD IN U.K.

The Norwegian chemicals firm Borregaard Industries has made its first UK acquisition which, the company says, gives it a base from which to develop stronger links with the EEC. Borregaard did not reveal the purchase price for Warrington-based Trafford Chemicals, but the figure is believed to be less than £5m ($9m).

Trafford has acted as the Norwegian firm's UK agent since 1974 and is the main UK supplier of lignosulphonates and other chemicals used in wood pulping. Borregaard is one of the world's top three producers of lignosulphonates.

Borregaard says it will consider an expansion of Trafford's manufacturing base together with development of the company's marketing network. Sales of Trafford are some £5m/year.

Chemical Markets Abroad

STRONG DEMAND AND STABLE PRICES LIFT HOECHST RESULTS

Hoechst has posted major gains for the first quarter of 1988 following the trend set in the second half of 1987. Group sales jumped 16.8 per cent to DM9.3 bn ($5.9bn) from the same period last year, and pre-tax profit increased 19.5 per cent to DM 820m. According to the company, the improvements are due to very high demand for Hoechst products and stabilization of prices which had fallen last year.

Sales in West Germany rose 7.5 per cent to DM2.5bn and turnover abroad increased by 20.4 per cent to DM7.3bn. Hoechst says the increase takes account of the fact that for the first two months of 1987 Celanese had not been consolidated. However, sales of Berger, the UK paint company sold at the end of the year, are not included.

After adjustment for these changes, Hoechst says group sales rose 8.8 per cent. Operations in Western Europe, the US and Asia have shown "a particularly favourable trend."

At Hoechst AG, sales for the period hit DM3.8bn, a rise of 11.1 per cent on 1987. West German sales rose 6.3 per cent to DM1.68bn with exports increasing by 15.2 per cent to DM2.1 bn. Operating rates are up on the first quarter of 1987 while inventories are lower.

Above-average business was reported for all divisions but plastics, chemicals and specialities performed especially well. Drugs operations have also picked up following a 3.8 per cent dip in total sales for 1987.

Pre-tax profit at Hoechst AG rose 16 per cent to DM434m with all divisions contributing to earnings. But the company said the equivalent period in 1987 was comparatively weak.

Sales figures for April combined with current order levels indicate that Hoechst expects no decline in sales or profit in the near future, and is confident of a good result in 1988.

Reviewing the group's performance in 1987, chairman Wolfgang Hilger said results had been encouraging although there were problems in pharmaceuticals and agricultural product areas. Buoyed by a sales contribution of DM4.8bn from Celanese, Hoechst's turnover jumped 11.2 per cent to DM36.9bn and profit before tax rose 10.4 per cent to DM3.1bn.

Performance in the chemicals and colours areas was described as encouraging. Sales for these businesses rose 19.5 per cent to DM9bn, primarily due to a 46 per cent increase in chemicals sales following the inclusion of Celanese. Ethylene-based product development was "above average" and dyes and pigments were "gratifying".

Fibres sales jumped by 59 per cent to DM5.7bn with high capacity utilization in Hoechst's West European plants. This business was given a boost by the addition of Celanese' fibres operations in the US.

For Your Regular Requirements
At Most Competitive Rates :

Acetyl Chloride
Benzyl Chloride
Benzoyl Chloride
Benzo-Tri-Chloride
Chloro Acetyl Chloride
Iso Propyl Chloro Acetate
Methyl Chloro Acetate
Calcium Chloride Lye 35%

HYDROCHLORIC ACID IN AR/CP/Tech. Grade
SULPHURIC ACID IN AR/CP/Tech. Grade
NITRIC ACID IN AR/CP/Tech. Grade
LIQUOR AMMONIA 910 888 880

Please Contact Manufacturers :

GUJARAT INDUSTRIAL CHEMICAL CORPORATION
37/39, S. S. Gaikwad Marg (Trinity Street),
Dhobi Talao, Bombay-400 002.
Phones : 292227/254408
Factory: Plot No. 194/1, Sokhada Pillage, Tal. Khambat.
(Gujarat)
Phones : 2970/2841

Plastic film sales rose 4.9 per cent to DM1.7bn and polymers business was described as "very brisk" with sales climbing 10.2 per cent to DM6.9bn as a result of high world demand.

Despite a drop of 5.5 per cent to DM3.6bn in engineering and technology sales, Hoechst said business in printing plates, office machines, industrial gases and welding equipment was strong. Uhde, the group's contracting subsidiary, "maintained its successful position in the plant engineering business" which Hoechst said is "becoming more difficult."

The group's problem children are pharmaceuticals and agriculture. In the agriculture sector, which slipped into the red, sales dropped 10.3 per cent to DM2.19bn. Hoechst blamed the decline on a crisis in the agriculture business throughout the industrialized world and said this had a knock-on effect in fine chemical intermediates for plant protection agents.

Although pharmaceuticals remained in profit, sales declined 3.8 per cent to DM6.3bn Hilger said this business had made a good start to 1988, but he added that this was overshadowed by a new West German health reform law which has been agreed in principle by the government. The aim of the new law is to cut pharmaceuticals spending by DM2bn and half of this sum will come from reducing the drug manufacturers' selling prices. Off-patent drug prices will be cut to fixed levels geared to the prices of generic competitors. Hilger said this will hit research-based manufacturers badly and Hoechst will suffer revenue reductions of some DM100m.

As a result, the Hoechst chairman said further rationalizatio will be necessary in the group pharmaceutical division and pe sonnel cuts across the board ca be expected.

Capital expenditure for 198 was DM2 4bn and this is projec ted to rise to DM2.8bn this yea Around DM1.55bn has bee earmarked for expenditure i West Germany and 20 per cer of Hoechst AG's planned inves ment of DM1.1bn will be for er vironmental protection. The othe major focal points are Weste Europe and the U.S.

Hilger said projects in th pipeline include a new pilot pla nt for paints and strategic mater als development, expansion c speciality yarn production, a anti-clotting agents facility an an optical storage plant.

The chairman also said a U acquistion had been targeted bu declined to define product are or size.

MARK OF QUALITY
NOW AVAILABLE IN ANY QUANTITY
AS AND WHEN REQUIRED BY YOU

BENZYL CHLORIDE
BENZO TRI CHLORIDE
BENZOYL CHLORIDE
BENZALDEHYDE

GWALIOR CHEMICALS PVT. LTD.

Factory :
Birlagram,
NAGDA (MP) 456 331.
Phone : 283

Regd. Office :
29, Bank Street, 1st Floor,
BOMBAY-400 023.
Phone : 2862453/2883021
Gram: "METALDIST"

Alcan locks to aluminum reinforced with ceramic

Alcan Aluminum will build th first industrial-scale plant for pr ducing Dural ceramic-particle-r inforced aluminum. Although th Montreal-based company did n reveal a plant completion date, plans to pick a site for a 25-mi lion-lb/year unit in Canada-pr bably near its smelters in Qu bec or British Columbia — the next two months. The futu of reinforced aluminum looks s good that Alcan already is plan ing to expand production to 5 million lb/year by constructing second 25-million-lb/year pla in the U.S., the company say Alcan curently produces limite quantities of reinforced al minum; the product has pote tial applications in the autom tive, arero-space, defense an sporting goods industries.

LL'S STOCK CHAIN ECTS MAGNIFY DEMAND IMATES

etrochemical demand is sig antly affected by stock ef s which will increasingly do ate growth rates and must be gnized in forecasting poten future demand, according to Dawson, head of Shell's ness strategy department.

peaking at a recent SCI meet in London, Dawson expanded Shell's earlier warnings that chemical industry is under nating the effect on demand ed by stockbuilding by cus ers, which can magnify grow ates and lead to rash invest t decision on new capacity.

ne of the accepted methods forecasting demand is to k down growth into two s. The first relates to estima penetration into new appli ns (substitution) and the se l, growth of applications into h the product has already trated. The latter is usually sured by an index of indus production (IIP).

though Dawson notes that e models have been shown e good longterm predictors, frequently fail to reflect term peaks and troughs. has introduced the idea of k" to explain the difference een actual consumption fi s and those expected from growth due to substitution growth in existing applica model. The term "stock" s to a complete stock chain stream of the supplier.

the case of ldPE for exam this would include ldPE at convertor, ldPE packaging at the convertor, ldPE film goods manufacturer, goods ped in film at the manufacturer, goods in shipment and those held in stock at both wholesale and retail.

Also, stock change does not imply an action of the primary supplier. Product taken from stock or going into stock could include product from a number of sources, for example, imports. This applies to the whole chain, with imported wrapped goods having a similar effect as imported ldPE.

Dawson concedes that is no means of quantifying this stock chain but the approach is concerned only with change of stock, without stating whether the level was high or low at the start. Shell has analyzed a number of products but has selected polypropylene in particular which has been quoted recently as having very high growth rates.

The interest lies in the change, rather than the absolute level of stock. Shell's analysis shows that in 1979, for example, stocks at the year end were a month higher than at the beginning. This effectively made 1979 a thirteen month year, giving an apparent 8.5 per cent increase in PP demand. Similarly, in 1980 there was a PP stock change of minus one month, giving an eleven month year and an apparent decline in demand, solely due to stock changes.

A number of factors for the changes were examined, including industrial confidence, price levels, interest rates and capacity constraints. Some correlation has been found between stock levels and PP prices and interest rates, but Dawson concedes that it is difficult to assess which is cause and which is effect. Rising PP prices could induce customers to buy early, or increased shipments due to inventory building could induce producers to raise prices.

When Shell considered the contribution of all three factors — substitution, IIP and stock changes — to the total growth in PP deliveries, the substitution rate was found to be declining (from around 15 to 7 per cent) making the impact of the stock change more pronounced. At +/—10 per cent, this can be up to twice the variation in IIP (+/—5 per cent) so stock effects increasingly dominate demand as the product approaches maturity.

Although Dawson says the results cannot be used directly for forecasting, an understanding of the breakdown can. The industry can be in stock growth or decline for several years and projections based on these periods can differ. A trend produced from data for 1980-87 would be based on low demand at the start (stock decline) and high demand at the end stock build producing a high projection which Dawson says is evident in some of the high current forecasts of PP demand.

SUPPLY PROBLEMS LIFT ETHYLENE SPOT LEVELS

Ethylene supply in Europe has come under severe pressure during the past few weeks with a spate of cracker closures and operating problems pushing producers on to the spot market and lifting prices.

After remaining stable during the first quarter, spot prices have jumped from around $410/ton to a current level of $460-480/ton cif NWE after a brief flurry of spot dealing. However trading has now come to a standstill as spot availability has dried up.

Central to the supply problem is the prolonged shutdown at the

33,000 ton/year cracker in Libya affecting availability in the Med. The unit has been down for maintenance since April 6 and was originally expected up after a week. However after considerable delay, sources suggest the plant will not be back before May 10, and will be unlikely to provide much spot material as most output is committed until July.

Repsol's 210,000 ton/year cracker at Puertollano in Spain was hit by an explosion last month, pushing the company onto the spot market as a buyer mopping up spare Med material. Elsewhere in the Med, supply remains tight particularly since Petkim stopped ethylene exports to cover for a turnaround at its 300,000 ton/year unit in Turkey.

Meanwhile further north, Shell has had start up difficulties at its 360,000 ton/year unit at Berrie. The plant was due up after maintenance on April 16 but owing to problems with turbines at the plant, it is not expected up before this week. As a result, Shell has been heavily engaged in ethylene buying. Elsewhere in France, Exxon lost three days production at its 300,000 ton/year Notre Dame de Gravenchon cracker after an unplanned shutdown and Atochem lost 3-4 days production at Gonfreville following industrial action at the site.

With no uncommitted deep-sea material due in Europe and some traders already talking of prices up to $50/ton cif for ethylene, many sources are confident the picture will ease. Some crackers were due back on last week and Dow's 470,000 ton/year unit at Terneuzen is due back on stream on May 10 following a maintenance turnaround.

STYRENE MARKETS STABILIZE AFTER SPOT BUYING SPREE

The European styrene market is consolidating its position after the second serious buying spree this year which pushed spot prices up $100/ton in one week to $1,695-1,710/ton fob for T2 and to $1,680-1,690/ton for T1 cif.

Recent price increases were helped along by significant spot buying from West German producer BASF, which bought around 7,000 ton of T2 product from traders, mostly around the $1,700/ton level. This buying interest, coupled with selective strikes by CGT chemical workers at CdF Chimie/Norsolor's styrene unit at Carling in France — which threatened to spill over to Atochem's site — buoyed expectations among traders for a few days.

The latest Q2 contract settled at DM2,350/ton ($1,403/ton) between Shell and Bayer just after the spot price rise will provide the market with "a period of reflection" according to one producer. The DM2,300-2,350/ton negotiating range had been mooted for about a month before the first settlement, so the final price came as no major surprise, and as one producer commented "represents a commonsense solution to a difficult pricing situation."

However, with the latest increase in spot prices, some producers had been hoping contracts would move up accordingly to around DM2,400/ton. But a counter-lobby led, some sources believe, by BASF and Atochem, pushed to maintain Q2 contracts at first quarter levels of DM-2,200/ton.

The current market mirrors the situation at the beginning of the year when spot styrene shot up from $1,210-1,220/ton to $1,400-1,450/ton for T1 and $1,270/1,280/ton to $1,450-1,480/ton for T2 over Christmas. On the back of these sudden increases, led at the time by strong demand from downstream business in the Far East, producers speculated contracts would rise too. They were wrong, and the DM2,200/ton Q4 settlement which observers predicted would rise unless there was some respite from escalating spot prices remained for the first quarter. There seems to be a genuine concern among monomer producers that further increases will "kill off" customers in traditional markets. Complaints from the non-integrated lobby, led by a handful of ABS producers and backed by SBR and independent convertors, also appear to have been heard. Other suppliers have commented that the high spot numbers could only be justified for the purpose of "topping up" inventories and could in no way be carried through to contracts.

In the North West European market polystyrene moulders are paying 5-10 pfennigs/kg more for both general purpose and high impact grades. In the UK however, higher prices prevail due to the strong value of sterling against the Deutschmark.

Polystyrene prices meanwhile, which some observers thought would rise in May following the Q2 settlement, have remained at levels achieved in March. Producers said they were "satisfied with the present situation" and were not planning to increase prices in May or indeed the quarter. One producer said he was more concerned about the ethylene and benzene feedstock contracts in Q3 than the monomer price. "Our pricing policy after June for polystyrene will depend on these contract levels," he said.

In the European Market

ailure of the recent Vienna
ec meeting to achieve produc-
cuts sent crude oil prices in-
tail spin that had repercus-
ns across the entire barrel.
htha prices have now stabili-
at $150-154/ton as traders
ided the market had over-
cted.

thylene prices have moved up
$460-480/ton cif NWE in an
emely tignt market but trad-
has now come to a standstill
no spot product available.
last deal was done by Rep-
which bought a 4000 ton par-
of Mexican material at $495/
cif Med. Buying interest is
strong with a number of pro-
ers hit by unplanned shut-
ns and start up delays. Sour-
say several derivative pro-
ers in the Med area have had
urb production because of in-
cient ethylene supplies. ARG
prices have moved up to
920-950/ton.

pot propylene has notched
nother DM20/ton, but with
ally no material available,
ness has been confined to
l volumes. One deal was
at DM615/ton cif NWE for
0 ton but higher numbers up
M635/ton cif NWE have been
rted.

tadiene prices have conti-
to recover on both sides of
Atlantic. One deal was re-
d in NWE at $250/ton fob,
producers are already reluc-
to let material go for under
/ton fob. In the US, produ-
are posting 18 cents/pound
May contracts against an ex-
d level of 16 cents/pound.

omatics trading has been
ued and pessimistic, causing
ene prices to tumble to
-325/ton. Several European deals were concluded around $325/ton although bids have dropped down to $310/ton with no takers.

Apart from DSM buying for chemical use there has been little toluene activity this week. Prices have fallen to $250-260/ton with sellers holding off for numbers up to $265/ton.

Xylenes have remained buoyant partly, traders believe, as a result of buying interest from Total for its new isomer unit in France.

Paraxylene prices have weakened a little to $595-605/ton with little buying interest in Europe. Shell has won three quarters (75,000 ton) of an Indonesia tender for delivery over one year. The company refused to comment on the deal but market sources suggest it is worth between $400-510/ton cif. The remaining 25,000 ton is expected to go to a Japanese trading house, possibly for PTA or DMT production.

Styrene, which was heading down to $1670/ton at the beginning of the week, picked up when Montedison entered the market as a buyer. The Italian major is understood to have lost a flare stack at one of its Mantova units and has been forced to make 3,000 ton of spot purchases around the $1,700/ton mark for its polymer units at Feiuy in Belgium. Repair work at Mantova is expected to take two weeks.

Methanol prices are stable at DM320-325/ton for T2 and $165-175/ton for T1. But material is becoming scarce with spot numbers in the US rising scheduled for Rotterdam from non-European sources has been rerouted to the US Gulf.

International Standard
Laboratory & Analytical Reagent

For Your Bulk Raw Material Requirement Of

- BARIUM CARBONATE LR
- COBALT ACETATE LR
- COBALT CHLORIDE LR
- COBALT NITRATE LR
- COBALT SULPHATE LR
- COPPER ACETATE LR
- COPPER CARBONATE LR
- COPPER OXIDE (BLACK) LR
- NICKEL CARBONATE LR
- NICKEL-AMMONIUM SULPHATE LR
- POTASSIUM CHLORIDE LR
- STRONTIUM CHLORIDE LR
- STRONTIUM NITRATE LR
- ZINC ACETATE LR
- ZINC CARBONATE LR

Please Contact Manufacturer :

META-LAB CHEM

K. K. Shah Compound, Manor Road, Palghar-401 404.
Dist-Thane (Maharashtra), Phone: 432

News from the American Market

Himont will add 600 million lb/year of PP capacity

By the end of 1989, Himont plans to boost its North American polypropylene (PP) capacity to 3.0 billion lb/year from 2.4 billion lb/year. All the new capacity will use Spheripol process technology, which currently accounts for 1.5 billion lb/year of the company's North American capacity. Himont will debottleneck 200 million lb/year of PP capacity at existing units by year end. An additional 400 million lb/year of capacity is in advanced stages of engineering and should be completed by the end of 1989. PP producers world-wide have announced capacity expansions. Demand for PP in packaging, film, fibres, transportation and nonwoven materials is growing rapidly, according to R. Michael Hendricks, Himont's president and chief operating officer. Moreover, he notes, "Himont's rapid growth in North American propylene-based composites has added significantly to our internal resin requirements." The 900 million lb/year of older slurry-process PP capacity that Himont has in North America will operate as long as market conditions dictate, Hendricks says.

U.S. olefins makers squeeze out more product

Although ethylene supplies remain tight and prices continue to spiral upward, U.S. producers did manage to increase output during the first quarter. Ethylene production in the first three months rose by 9.7% compared with the same period a year earlier, to 9.21 billion lb, according to a survey prepared for the National Petroleum Refiners Assn. (NPRA) by the accounting firm Ernst & Whinney. First-quarter of 1987 by 3.1%, but several major plants reported operating difficulties late last year. Ethylene inventories at the end of the first quarter stood at 1.264 billion lb, 13% lower than stocks on the same date last year and 6.2% higher than stocks at year-end 1987. The push to make more ethylene has resulted in a rise in co-product propylene production. Propylene output in the first quarter rose by 13.7% over that in the corresponding 1987 quarter — to 2.75 billion lb, NPRA reports. In contrast, propylene output recovered from refineries grew by only 2.1%, to 1.74 billion lb, in the first quarter. Propylene inventories, which have been rising rapidly since the second half of 1987, reached 1.01 billion lb, a dramatic 80% leap over stock levels on the same date last year. Compared with year-end 1987, however, propylene stocks inched up only 2%.

. . .and so do benzene producers

U.S. benzene production in the first quarter of this year rose by 21.5%, to 410.5 million gal, compared with the first quarter of 1987, the National Petroleum Res. Assn. says. Unlike last year at this time, the benzene market has not been characterized by a rapid run-up in prices. That may be because supplies are more plentiful. Compared with the fourth quarter, benzene output in the first three months of 1988 was up only 3.7%. Benzene inventories also are 23% larger than they were last year but have been drawn down significantly — to 116.7 million gal from 158.1 million gal at the end of 1987

Union Carbide is raising tabs for liquid gases

The Linde Div. of Union Carbide is attempting to eliminate the discounts on liquid oxygen, nitrogen and argon prices and return to published price schedules for the liquefied gases. The merchant gas business is extremely competitive, says John R. MacLean, president of Union Carbide's Industrial Gases Business Group, and in the past few years, selling prices have eroded. Under the new pricing policy, MacLean says, liquid gas prices could rise 5-30%, depending on the discounts individual customers were receiving in the past. Carbide feels that the time is ripe for price increases, because industrial gas supply and demand are in better balance than three years ago. Fewer air separation facilities are being constructed, says MacLean, and gas demand has been raised by "the resurgence of industrial America."

Borden raises the prices of formaldehyde

Borden Chemical followed Hoechst Celanese in raising the price of formaldehyde by 1 cent/lb on a 100% basis, effective June 1. Borden will also increase its tab for urea-formaldehyde concentrate 85 by 0.6 cent/lb. Formaldehyde producers say that higher raw material prices particularly for methanol, are behind three successive price hikes since April.

New Developments from America

Plastic media blasting: A nontoxic way to strip paints

Working for the U.S. Air Force, Battelle is evaluating a process that strips paint from metal without the use of solvents, which are now being severely restricted by the Environmental Protection Agency. The process, plastic media blasting, involves blasting painted aircraft surfaces with tiny nontoxic beads to remove paint. They can be collected by a suction device for reuse. Battelle is now seeking the best bead material for use on a variety of aircraft and other products. It also is exploring the feasibility of using the process to strip paint from composites.

DOE plows $2.7 million into superconductivity R&D

The Dept. of Energy's (DOE) Office of Energy Storage and Distribution will award a total of $2.65 million in 1988 to 10 DOE labs for "expanded research in the development of practical high-temperature superconductors," says Secretary of Energy John S. Herrington. The research and development (R&D) work, says DOE, will include development of a superconducting wire as well as thin- and thick-film conductors, new concepts in processing and fabrication, and new approaches for producing special devices for power systems. Research teams from the private sector, universities and government labs will carry out some of the projects. Among the recipients are Ames National Laboratory, Argonne National Laboratory, Brookhaven National Laboratory and Lawrence Livermore National Laboratory.

A genetic route to superoxide dismutase

Aiming to tap an estimated $500 million market, Bio-Technology General (New York City) says that it has won a patent (U.S. 4,742,004) on a method for producing enzymatically active human copper-zinc superoxide dismutase (SOD), a substance that may reduce heart-attack tissue damage. The patent, which the company says is the first to be issued for genetically engineered human SOD, covers broadly the "cost efficient" production of human copper-zinc superoxide dismutase in bacteria. The company is moving to develop a commercial recombinant superoxide dismutase product with Bristol-Meyers, which is now sponsoring clinical trials.

Making fumed silica continuously

Fumed silica, a 50-year-old product that is used as a reinforcing agent in elastomers and other materials, will be made with updated, continuous know how by Degussa in a $30 million plant that will be built at Halfmoon, N.Y. (north of Albany) by 1991. Fumed silica is a colloidal form of silicon dioxide that is ordinarily made by the combustion of silicon tetrachloride to make particles that absorb water. The new process feeds that particles from the first reactor and adds dimethyldichlorosilane in a second fluidized-bed reactor. The result is a product that cannot dissolve in water. The chemistry involves replacing the hydroxyl moiety of the silanol groups on the surfaces of the hydrophilic silica particles with methyl radicals, creating a hydrophobic silica particle. For its new plant, Degussa will buy chlorosilane from General Electric's (GE) nearby silicone plant at Waterford, N.Y. "In turn, Degussa will supply GE Silicones with hydrophobic fumed silica and intends to supply significant quantities of this product to the merchant market," says Terry Bowerman, national marketing director of Degussa's Aerosil silica.

A new team in three- dimensional drug design . . .

The use of three-dimensional drug design to develop novel drugs in several therapeutic areas is the aim of an agreement between Eli Lilly and Agouron (La Jolla, Calif.). Agouron will contribute its expertise in three-dimensional drug design. Lilly will have first right to manufacture and market any developed products. Additionally, Lilly has purchased 250,000 shares of Agouron's common stock for $3,250,000.

One to make engineered proteins

Production of genetically engineered proteins is the subject of a licensing agreement between Genentech and KabiGen (Stockholm). Genentech will license KabiGen's EcoSec System to manufacture Insulin-like Growth Factor-I (IGF-I), a human hormone that could treat wounds, burns and postmenopausal osteoporosis. The license provides Genentech with exclusive marketing rights in the U.S. and Canada for IGF-I produced by the KabiGen process. The process involves use of **Escherichia coli** to produce genetically engineered proteins and secrete them directly into the surrounding culture medium.

Biotechnology

HOECHST-CELANESE AND BOOTS TO FORM JV

Boots, the UK pharmaceuticals concern, is linking up with Hoechst-Celanese to build a $35m 2,500 ton/year ibuprofen facility in the US. The two firms are currently negotiating the establishment of a 50/50 joint venture to manage production and marketing of products from the plant which is expected to be on stream by 1991.

The new facility, which will probably be sited in Bishop, Texas, will use a process developed by Celanese. This process, which is currently in the patent pipeline, still uses isobutyl benzene as the starting material but requires only three production steps.

Results from a pilot plant operated by Hoechst-Celanese indicate that all intermediates are produced in high yields and require little purification. "The process does not produce any by-products and the low levels of effluent can be readily handled by any existing environmentally efficient plant", a spokesman said.

The two partners believe that the new process will allow the joint venture to be the cheapest supplier of the drug. Boots has no plans to switch to the new technology at its 3,000 ton/year Nottingham, UK-based facility. But the UK firm does see the deal as giving it the on-shore manufacturing facility in the US that it has been seeking for some time.

Boots is predicting growth of to 10 per cent/year in the next decade for the rheumatoid arthritis drug. The US represents about half current global consumption and the new plant will initially serve the domestic market although may eventually supply the drug to the South American market. Both partners expect to finalize details of the joint venture in the next few months.

CELLTECH SEEKS DIAGNOSTICS PARTNER

Celltech is seeking a partner to take over the stake once held by Boots in Boots-Celltech Diagnostics. The UK biotechnology concern is already in discussion with a number of interested companies, according to chief operating officer David Gration. "We are looking for a company with international marketing expertise and the ability to develop new test kits," he adds.

Boots-Celltech Diagnostics reported a loss of £2.45m ($4.65m) last year but Gration is confident that the firm will break even by next year. Greater market penetration for its products will be the key factor if the firm is to move into the black. "This is why any potential partner will need marketing experience," explains Gration.

But while Celltech intends to maintain its efforts in monoclonal antibody production, its future success lies with the manufacture of therapeutic proteins. Two early products are likely to be an antibody-blood clot dissolving enzyme hybrid and a calcitonin gene-related peptide for cerebrovascular disorders.

EUROCETUS LINKS WITH FARMOS IN IL-2

Eurocetus, the Netherlands-based subsidiary of Cetus, and the Finnish drugs maker Farmos have signed a distribution deal for interleukin-2 in Denmark, Finland, Iceland, Norway and Sweden. EuroCetus' interleukin-2 product Proleukin is currently in human clinical trials in the US and Europe against a variety of cancer types and certain infectious diseases.

Farmos, which has been expanding its pharmaceuticals sales with the establishment of a number of marketing companies in the Nordic region, focuses on the production of anticancer drugs and tumour markers. The Finnish firm is also expanding its research capabilities in the field with more than 5 per cent of net sales being earmarked for the development of original products.

UK GOVERNMENT AND FIRMS BACK ENZYMES PROJECT

The UK government is to back a £4m ($7.56m) collaborative research programme into biotransformations. It is part of the Link initiative, the government programme designed to encourage collaboration between the scientific community and industry. The programme aims to promote the early exploitation by UK industry of research in biotechnology undertaken in academic and other research establishments.

The biotransformation programme is to cost £4m over three years with half coming from industry, £1m from the department of trade and industry and £1m from the science and engineering research council. In the first stage of the programme, estimated to cost £1.6m, ten companies, Beechams, British Sugar, BP, Courtaulds, Enzymatix, International Biosynthetics,

Glaxo, ICI (Pairts and Biological Products separately), Pfizer, Quest International and Shell will fund three pre-competitive research projects to the tune of £15,000 a year.

The projects, which will be based at Exeter, Kent and Warwick universities, include the stability and activity of enzymes and whole cells in low water environments, redox reactions including co-factor regeneration, and the formation of single carbon-carbon bonds with the possibility of using aldolases. Companies are also free to place an additional confidential one to one contract with the research groups. Together, the companies will form a steering group and there is a target start up date of October 1 this year.

Dr. Kenny Lang of Quest International says basic research into biotransformations could produce results which will greatly reduce the cost of many chemical reactions.

"We use something like 600 different chemicals at Quest some of which are very expensive. This research should make available methods of synthesis previously thought difficult or too costly. And this will have wide applications, reflected in the diverse range of companies involved in the programme," he notes.

The next programme under the Link scheme will be titled selective drug delivery and targeting. It is thought that up to 15 British pharmaceutical companies will be involved in the funding of research into the transfer of drug molecules across biological membranes.

The programme is estimated to cost £3m over four years with each company putting in £25,000 a year. An intellectual property right agreement will be applied for in July. Many pharmaceutical firms are already active in developing national approaches to drug delivery.

BIOTECHNICA STARTS ALFALFA FIELD TRIAL

Biotechnica International has started field tests with its genetically engineered nitrogen-fixing soil bacterium Rhizobium meliloti on 90 alfalfa test plots at its Chippewa agricultural station. In greehouse trials the gene-spliced strain increased yields of alfalfa, according to Dr. David Glass, vice president of government and regulatory affairs for Biotechnica Agriculture.

US farmers grow about 25.5m acres/year of alfalfa producing a total crop worth about $7bn. Conventional strains or rhizobia are used on about 80 per cent of this corp. "Because the corp is not in a surplus situation and growers receive a premium price for good quality alfalfa, an increase in yield provided by a competitively priced seed inoculant can mean more profit for growers," added Glass.

Biotechnica hopes to win government approval later this year for gene-spliced rhizobia strains specific to nitrogen fixation in soya bean. Company scientists are also working to engineer herbicide, disease and insect resistance in maize, soya beans, wheat and alfalfa.

DOW UPS ME STAKE

Dow is moving quickly to up its stake in the fast-changing Italian chemical sector. As ECN went to press Dow announced that is was making a HartScott-Rodino filing with the US government related to future purchases of Montedison SpA common stock.

The exact number of shares Dow will acquire will depend on a number of factors, including the price and availability of shares. Dow presently owns between 4-5 per cent of Montedison's outstanding shares.

The move coincided with an announcement from Montedison that the signing of a letter of intent for a new joint venture with state-owned Enichem was imminent.

INDIAN FERTILIZERS UP

India's production of nitrogenous fertilizers is on target to touch 5.43m tons this year, marginally more than the previous year. However, plant problems, power cuts and water shortages are expected to dash producers' hopes of greater output. Production of phosphoric fertilizers is predicted to remain the same as last year, around 1.66m tons. Capacity utilisation of fertilizer units is likely to be more than 77 per cent.

HOECHST CELANESE DEBOTTLENECKS ITS ACETAL CAPACITY

The Engineering Plastics Div. of Hoechst Celanese will increase capacity for its Celcon acetal copolymer to 69 million tons/year through debottlenecking at U.S. plants. The expansion will be completed by mid-year. An advance in acetal copolymer technology, one that allows the polymer to be modified so that other materials can be alloyed with it, will open up a whole series of modified resins, says James J. Conway, vice-president and general manager of the division. The first product in the series, Tough-X, has been commercialized and is being considered for automotive fuel systems and other automotive components. Hoechst Celanese plans to expand acetal copolymer capacity again by 1990.

News About New Projects

LURGI/LITWIN TEAM WINS TENGHIZ SOUR GAS ORDER

A team comprising West Germany's Lurgi and Litwin of France has won an order from the Soviet foreign trade organization Machinoimport to set up the second and third oil/sour gas production lines at Tenghiz, near the Caspian Sea.

ECN understands that a letter of intent has been awarded to the contractors and negotiations are about to be finalized. The value of the order is thought to be below the $400m mark, following some changes in the scope of supply of the project. Sulphur recovery from Tenghiz I, for example, was 99.6 per cent. Because of environmental problems, the recovery will now be increased to 99.9 per cent and the **Sulfureen** sulphur recovery technology will be replaced with an alternative process.

Lurgi will provide the sulphur recovery units as well as sweet gas and LPG production process while Litwin will take responsibility for the oil and gas separation unit, utilities, liquid and solid sulphur handling facilities.

The group, together with Lavalin, is currently working on Tenghiz I which it hopes to complete by mid-1989. This line will produce 3m ton/year of crude oil, 634,000 ton/year dry natural gas, 174,000 ton/year of ethane, 112,000 ton/year of propane, 184,000 ton/year of C_4/C_5 fraction and 480,000 ton/year of sulphur.

Tenghiz II and III will triple current capacity at the field.

In addition to supplying feedstock for the $6bn petrochemical project at Kulsary, planned in a joint venture with a consortium of Western companies comprising Enichem, Montedison, Marubeni and Occidental, Tenghiz, which will eventually have 10-12 identical oil/sour gas production lines, will also provide ethane feed to the Shevchenko complex in Kazakhstan.

An ethane pipeline linking Tenghiz with the Shevchenko petrochemical complex is due to be laid in 1990.

Commissioned in 1980, the Shevchenko ethylene plant was the first ethane cracker in the Soviet Union. At present it uses ethane-rich gas from the Novyi Uzen gas processing plant in the Mangyshlak oil fields. Output from these fields has declined resulting in shortages of feedstock at the petrochemical complex.

Recent reports in the Soviet press said that, unlike any other deposit in the USSR, the Tenghiz crude contains up to 80 per cent of light fractions. The negative side, however, is that it contains up to one-third hydrogen sulphide and a high content of mercaptans, which makes much of the steel alloy equipment available unusable. Also, the Guryev oil refinery, which will initially have to process the oil, is not at present equipped to handle this composition of crude.

DU PONT BUILDS U.S. MMA PLANT

Du Pont is to build a plant in the US to produce methyl methacrylate monomer. The facility which would be located on the Texas Gulf Coast, is expected to begin production in mid-1991. Its projected capacity would be in the range of 57,000 ton/year.

MMA is used in the production of durable surface coatings, acrylic resins, impact modifiers, building products and acrylic sheet.

Frank Hoopes director of Du Pont's acrylic products unit, said the facility "would allow Du Pont to sustain growth in the domestic market and supply increasing downstream product needs around the world."

Du Pont operates the world's largest single train methyl methacrylate facility at Memphis, Tennessee. It also produces methacrylate monomers at Belle, West Virginia.

Meanwhile under the terms of a contract manufacturing agreement concluded with Du Pont de Nemours (Nederland), Ornatex is building a new plant for the processing of Teflon fluoropolymer compounds in Kerkrade, the Netherlands. It will process both nonflowing and free-flowing pelletized grades of PTFE using Du Pont technology.

The base resin for Ornatex's new facility is supplied by Du Pont's Teflon plant at Dordrecht, the Netherlands. The existing compounding unit at Dordrecht will be shut down.

CLIN INVESTS IN BRAZIL

Olin corp the US has announced a joint venture with Votorantim of Brazil to build an HTH calcium hypochlorite plant in Brazil. The swimming pool chemicals plant, which will have a total project cost in excess of $20m, will be located at Igarassu, near Recife on the northeastern coast. Construction will start late this year, and the unit is expected to be in operation in early 1990.

The new venture will be known as Nordesclor SA. Votorantim will supply chlorine, caustic soda and other raw materials from its nearby plant. Olin will provide engineering direction and marketing expertise.

POLAND INVITES BIDS FOR PP, MTBE, UREA PROJECTS

Poland has invited bids for several chemical projects. It has also applied for a $250m World Bank loan which, if approved, would be used to finance these as well as other industrial projects.

At the Mazowsze petrochemical complex in Plock plans are in hand to build a new 60,000 ton/year methyl tertiary butyl ether (MTBE) plant and to expand the two existing polypropylene production lines. The latter project, which will also include a change of catalyst, will lead to an increase in capacity from 65,000 to 75,000 ton/year. The existing PP facility uses the Mitsui Petrochemical process and was built by Mitsui Engineering & Shipbuilding in 1977.

At the Pulawy nitrogen works there are plans to replace four obsolete 110,000 ton/year urea production lines with one new 510,000 ton/year plant. There are also plans to modify the existing caprolactam facility, which has been operating at below capacity. Production, which has been running at 28,000 ton/year, will be raised to 34,000 ton/year. An existing melamine unit at the site will be restored to the original capacity of 28,000 ton/year.

The third project concerns the modernization of the Tomaszow viscose fibre plant. Under this programme, it is hoped to substitute production of polynosic viscose fibres with high wet modulus ones. These will be produced in a 15,000 ton/year plant.

The loan, yet to be approved by the senior management of the World Bank, would be subject to the usual conditions, which in the case of Poland would involve a 15 year repayment period including three years' grace. Current interest rate is around 7.7 per cent.

Other sectors which would benefit from the loan are the mechanical, pulp, paper and the wood industry.

SNAMPROGETTI UREA PROCESS FOR CHINA

In an international tendering for a fertilizer production rationalization project in China, which is being financed by tht World Bank, Snamprogetti's urea technology has been selected for the construction of four urea plants in the Chinese provinces of Habei, Henan, Shanxi and Beijing.

The award of this contract was made by the Chinese National Chemical Construction Corp.

Some 55 plants worldwide are now licensed to use Snamprogetti's urea technology, including five in China.

ROHM & HAAS EXPANDS UNITS

Rohm & Haas Co. is expanding its plastics modifiers production capacity in Grangemouth, UK from 30,000 to 45,000 ton/year. The new capacity will serve the steady growth in modifiers and processing aids for PVC as well as new demand now emerging for modifier engineering resins.

The new facility, scheduled for completion in 1990, will produce acrylic impact modifiers as well as methyl methacrylate butadiene styrene modifiers. Novel manufacturing processes will be utilized which result in products

AVAILABLE IN READY STOCK

SULFAMIC ACID

SULFAMIC DESCALANT GP & SR GRADE

CATALYST LCP

Mfg. by :

M/s. The Dharamsi Morarji Chemical Co. Ltd.

Also Available From Ready Stock:
GLAUBER'S SALT — TRI SODIUM PHOSPHATE SODIUM SULPHIDE FLAKES, POTASSIUM PERMANGANATE, SODIUM META SILICATE, SULPHURIC ACID — 98 & 70, POLYETHYLENE WAX, RESORCINOL, SODIUM SILICO FLUORIDE & OTHER TEXTILE CHEMICALS.

M. D. VORA & CO.

Stockists For :
M/s. DHARAMSI MORARJI CHEMICAL CO. LTD.
Amrit Niwas, 165/2, Lohar Chawl, Bombay-400 002.
Phones : 317023/251737

with improved handling characteristics. Foster Wheeler has been chosen as the engineering contractor.

Rohm & Haas is a world leader in plastics modifiers which are sold under the **Paraloid** name. It serves the European market from two world-scale plants in Grangemouth and Lauterbourg, France. The Lauterbourg plant is also to expand and modernize its facilities for plastics modifiers bringing capacity to 30,000 ton/year.

AMMONIA METHANOL TiO_2 PLANNED

China's southern island of Hainan is slated to become a major petrochemical centre, Shang Zhizhong, general manager of the island's branch of China National Offshore Oil Corp., says.

In addition to an oil refinery, three ammonia plants are to be built with capacity of 1.1m ton/year, Shang said. Output is primarily intended for fertilizers production, of which China is chronically short. Another plant is to produce 200,000 ton/year of methanol while other units to produce caustic soda and other materials are foreseen.

Work is to begin shortly on a titanium dioxide plant with capacity of 50,000 ton/year, the official said.

All these projects will be in the form of Sino-foreign joint ventures and cooperative businesses.

NOBEL SIGNS CHINA TDI CONTRACT

Shanghai International Trading Co and Shanghai Wu Song Chemical Works have signed a contract with Nobel Chematur of Sweden for the delivery of a plant to produce the polyurethane raw material toluenediisocyanate (TDI).

The unit will have a production capacity of 10,000 ton/year and is due on stream in 1992.

Nobel Chematur, the engineering subsidiary of Nobel Industries, will supply the know-how, basic and detailed engineering, main equipment items and provide training for the personnel, The training will take place in the Brazilian TDI plant owned by Pronor Petroquimica.

This is Nobel Chematur's third TDI contract within eight months. The earlier awards were from Nan Ya Plastics Corp of Taiwan and Taiyan Chemical Industry in China.

GERMAN-SPANISH TEAM WINS ORDER

A west German-spanish engineering consortium led by Lurgi, Frankfurt, has won a turnkey contract to build a 30,000 ton/year plant for fatty alcohols production in Indonesia.

The plant, to be built for PT Aribhawana Utama at Belawan, North Sumatra, will use palm kernel oil as a feedstock to produce fatty acids, fatty alcohols and glycerines, according to a Lurgi process. In addition to building the plant, Lurgi and its Spanish partners Lurgi Espanola, Centunion and Tecnicas Reunidas will supply complete engineering and equipment. Lurgi said this is the sixth fatty alcohol plant to be built using its technology.

Any Problems In
TEMPERATURE MEASUREMENT?
Always Insist on

K H
BRAND

MERCURY-in-STEEL DIAL THERMOMETERS
BI-METAL DIAL THERMOMETERS
ASTM/IP STANDARD GLASS THERMOMETERS

M/s. KALIDAS HARJIVAN

(Estd : 1920)

195, Samuel Street, Bombay-400 009.

Phones : Office : 8555525, 321882 Resi.: 8120548

Grams: MAHUVAWALA

Environment

BASF bows to Dutch call for herbicide reduction

BASF says it will reduce discharges into the Rhine of the herbicide bentazon from its Ludwigshaven site by more than 90 per cent in two years. The move follows pressure from Dutch water authorities which claim concentrations are an "acute threat" to the public.

Health inspectorates from the north and south Dutch water authorities claim bentazon concentrations have reached 1.6 microgram/litre in the Rhine. Legally the level should not exceed 0.1 microgram/litre in the Netherlands. The water authorities claim they will have to fit expensive filters.

Bentazon is just one of many chemicals said to contaminate drinking water sourced in the Rhine. Others include nitrates phosphates and halogenated hydrocarbons. Southern Holland gets 60 per cent of its drinking water from the river.

Dutch treatment companies have been in negotiation with BASF. But according to sources, the companies are now considering taking the matter to court.

BASF holds a permit to discharge 0.1 micrograms/litre of bentazon in waste water from its agrochemical plant. The chemical giant claims this limit has always been observed and usually the safety margin is substantial. It already extracts some bentazon from effluent.

Nevertheless, BASF has started work on a new treatment process which aims to extract more of the agrochemical from waste. Once the related technical problems have been solved, a process which the company says could take up to two years, the discharges will be well within the Dutch limit. New treatment equipment will cost DM6m ($3.6 m).

A spokesperson from Dutch water treatment concern Gemeenetwater-leidingen welcomed BASF's move, but added that it believed drinking water should be free of agrochemicals. The company advocates setting new standards for the Rhine.

BASF points out that the World health organisation stipulates 25 microgram/litre of bentazon in drinking water as an acceptable level. For this reason the German company believes the average 0.3 microgram/litre in the Rhine does not constitute a health hazard. However, the German authorities are enforcing the EEC standard of 0.1 microgram/litre from October 1 1989.

India pays aid to Bhopal victims

The Indian government anticipates that as many as 250 people will die annually over the next seven years as a result of the poison gas which leaked from Union Carbide's Bhopal pesticides plant more than three years ago. Over 2,800 died and an estimated 25,000 were affected by the tragedy. The central Indian government of Madhya Pradesh has decided to give Rs3.9 bn ($280m) aid to the victims as part of an action programme to provide economic and medical assistance.

Meanwhile at its annual shareholders meeting, Union Carbide's chairman Robert Kennedy said the company cannot accept the Indian court's attempt to impose legal liability without a trial.

Tiofine TiO_2 unit on schedule

The Dutch government has issued all the permits required for Tiofine's chlorine-based titanium dioxide plant which it plans to build at Rozenburg, the Netherlands. It now looks as though the plant will be ready to start production by the end of 1989, replacing the sulphate-based process currently operating at the site. Permits for this will not be renewed after January 1, 1990. In March, the Dutch company said that it might not meet the 1990 deadline if the permits for the new 45,000 ton/year plant were not granted quickly.

The chlorine-based process is much less of a burden on the environment than the sulphate route, which results in dilute sulphuric acid, containing heavy metals, being discharged into the sea. In contrast, the chlorine used to extract titanium from ore can be recovered and recycled. Also, unwanted metal compounds can be recovered and converted into solid waste for dumping at special sites. In addition, the ore used in the chlorine process is much richer in titanium, containing up to 95 per cent titanium dioxide, whereas the sulphate route uses 75-80 per cent titanium dioxide ore. This produces higher levels of unwanted metal oxides.

Currently, Tiofine's sulphate-based plant discharges 80,000 ton/year of dilute acid containing metal sulphates into the sea. The new facility will produce no acid and metal oxide waste will be reduced to a few thousand ton/year, with the heavy metal content removed.

Tiofine's new plant, which will cost Dfl.200m ($106m), will use Kerr McGee technology.

ITALIAN CLASH WITH ECC OVER ATRAZINE

The Italian government has run into problems over its decision to increase the maximum levels of atrazine allowed in drinking water. A Turin judge has brought a case to the European court of justice questioning the government's authority to increase the maximum permissible level from 0.1 microgram/litre of drinking water, which was set by the 1980 EEC directive on water destined for human consumption, to 1.7 microgram/litre.

The Italian government claims the EEC directive allows a margin of flexibility. But the European commission says that the directive only allows a member state to temporarily increase the maximum level if the pollution is accidental and does not endanger public health, or water can not be supplied from alternative sources. In the Italian case, the commission notes, the pollution resulted from years of systematic and repeated use of the herbicide, which it adds it tenatogenic, mutagenic and carcinogenic. The commission believes water could be supplied bottled or from wells.

A separate case is being brought by the commission against the Italian government on the same issue.

BASF AGREES TO PAY $1 . 3m EPA FINE

BASF corp has agreed to pay a $1 .3m fine for importing and distributing chemicals in the US without properly notifying federal officials. The US environmental protection agency said the firm violated federal rules by importing seven new chemicals without seeking agency review and distributing four other chemicals without notifying the agency.

When the complaint was first disclosed at the end of last year the epa had proposed to fine the company $4.3m. Nevertheless, the fine it still the largest imposed for importation and distribution violations. The severity of the fine, according to the epa, reflects BASF's history of past violations. The company has had nine complaints field against it.

BASF voluntarily disclosed the violations in this case, the agency said. In addition to the fine, BASF has agreed to start comprehensive training programmes for its employees. The company is also to begin an audit of its 151 facilities to ensure that they comply with federal regulations.

HOECHST DENIES SCRAPPING PLAN

Hoechst has rejected speculation by the environmental group Hoechster schnuffler und maagucker that it plans to withdraw its application to build a DM70m ($116m) plant for production of human insulin using recombinant DNA methods.

"The speculation is totally unfounded," a spokeswoman for the Frankfurt chemical group told ECN. The company is sticking by its plans for the plant and expects a decision by the state "any day now".

In talks with local media, the environmentalists speculated that Hoechst's slowness in filing for immediate implementation of a permit to operate the second (test) phase of its three stage plant for human insulin indicated it might be reconsidering the project. Hoechst, however, said the delay was caused by the need to respond to all 180 passages of scientific literature quoted by the plant's opponents to prove their claims that the project or product was unsafe.

Hoechst has also taken issue with a local German television report which alleged the company paid physicians to test the experimental drug. The company said the tests were a response to the federal health authority's request for information on side effects by asking physicians to observe patients treated with the drug. "The physicians were paid for their time and trouble," the spokeswoman said.

Caltech forms a scientific consortium

Research in broad areas of chemistry chemical engineering and related sciences will be supported by the newly formed Caltech Consortium in Chemistry and Chemical Engineering at the California Institute of Technology (Pasadena). Sponsors of the consortium include Du Pont, Eastman Kodak and 3M, as well as the Shell Oil Company Foundation, a nonprofit philanthropic foundation. Each sponsor will contribute $1 million over four years. In return, sponsors will gain early access to Caltech research and an opportunity to work with Caltech researchers.

MARKET INFORMATION

We cannot guarantee the accuracy of the prices published in CHEMICAL WEEKLY as they are based only on the enquiries made by our correspondent — and, as such they are not FIRM PRICES as between a buyer and seller. The prices are published only with a view to giving some ideas of market conditions.

The prices are inclusive of Excise and Maharasntra Sales Tax.

Chemicals Shortage

A number of important chemicals were in short supply in the Bombay Chemicals market during this week.

HOC has increased the basic rate of Acetone resulting an increase in the market rate at Rs. 15/-. GSFC's melamine had gone up to Rs. 52/-. PVA and Gohesenol were in short supply. Mercury shot up considerably owing to seasonal demand. Sodium alginate moved to Rs. 140/- from Rs 110/-. MEK was quoted at Rs. 49/- showing an increase of Rs. 9/- per kg.

Amongst dye intermediates, tobias acid and MPD were in short supply and were quoted at very high rates.

(Prices as on 9th June 1988)

INDUSTRIAL CHEMICALS	Per kg.
Ammonium sulphate	2.00
Ammonium phosphate (Mono)	14.50
Ammonium phosphate (Di)	12.00
Ammonium carbonate (Di)	17.00
Ammonium bicarbonate	4.75
Ammonium chloride	3.40
Ammonium nitrate	3.50
Arsenic white powder	21.00
Acrylamide (Resale)	57.00
Barium carbonate	6.00
Bleaching powder (33% Cl)	4.00
Borax (Granular)	14.00
Borax (Powder)	15.50
Boric acid (Tech.)	21.00
Bisphenol-A	56 + 57 ST
Butyl carbitol	45.00
Caustic soda (Flakes)	9.20
Caustic soda (Solid)	8.00
Caustic soda (Lye)	7.00
Calcium chloride 70% (solid)	3.25
Calcium chloride 75-80% (fused)	3.50
Calcium chloride 36% (Anhydrous)	5.00
Calcium Carbonate PPT	3.00
Calcium carbonate (Activated)	3.55
Camphor (Indian)	82.00
Cresylic acid	50.00
Cream of Tartar (Tech.)	70.00
Citric acid (Belgium) (Resale)	43.00
Citric acid (Indian) (Resale)	42.50
Copper sulphate	17.50
Chromic acid	50.00
Cyanuric chloride	120.00
Cobalt oxide	280.00
Carbitol	50.50 + ST

HOUSE OF CHEMICALS

HERDILLIA
BOMBAY

Truckloads/Drums
Small Packings.

ACETONE
DIACETONE
PHENOL

Caustic Pellets
Perchloric Acid
Mercury Salts
Cobalt/Cadmium/Nickel Salts, Lithium Salts &
Electronic Grade Chemicals

SHRISHMA
BANGALORE

SALICYLIC ACID
Tech. 95%/99%

ASPIRIN & OTHER SALICYLATES

METAL POWDERS :
Tin Zinc, Aluminium
&
NICKEL SCRAP

INDUSTRIAL SILICA WARES (LOT)

Retorts One neck O.D 9" (ID 7") H 23" Diameter 18" . 3nos

Retorts with raised neck having one hole 2½, H 30" D-18" .. 3nos

Trays (L-24", W. 12½" depth 9") .. 2nos

Beakers (5gal), crucibles (H 31" O.D. 8")

Coil Condensers, Pipes, etc. available.

Inspection on request

Please Contact :

NATIONAL SOLVENTS CORPORATION
B. No. 9, Devkaran Mansion, Pathakwadi, Pathakwadi, Princess Street, Bombay-400 002.
Tel : 259733/292218;
Tlx : 011-4149 DRUG

Dicalcium ph (Anhydrous		16.00
Ferric Chloride ...ps)		7.00
Ethylene urea		56.00
Glue flakes		8.45
Glue sheets		6.75
Gohsenol GH-17		120.00
Hydro	(Resale)	40+ST
Hyflosupercell		20+ST
Hexamine	(Resale)	35.00
Industrial Wax		25.00
Litharge		15.00
Lead Acetate (Tech.)		28.50
Lithopone		15.50+ST
Magnesium chloride (Crystal)		1.00
Menthol cryst...	...es)	185+Ex.+ST
Menthol bold		205+Ex.+ST
Menthol cryst...		245+Ex.+ST
Magnesium c...	) (Japan)	16.00
Magnesium ca...	) (Indian)	15.00
Maleic Anhydride (per kg)	(Resale)	45.00
Mercury (75 lbs.)		10,000.00
Nickel chloride		90.00
Oxalic acid	(Resale)	23.00
Peppermint oil (Rectified)		90+Ex.+ST
Potassium ...	(Indian)	19.00
Potassium carbonate	(Imported)	21.00
Potassium bichromate		22.00
Potassium phosphate (Mono)		14.00
Potassium phosphate (Di)		14.00
Polyvinyl al... lo. 117)		100.00
Polyvinyl al... lo. 173)	(Resale)	110.00
Polyvinyl alcoh... ..., 208)		110.00
Paraformaldeh...	(Resale)	21.00
Phthalic anhy... %	(Resale)	24.00
Pentaerythrito...	(Resale)	51.00
Paraffin wax	(Resale)	14.50
Rangolite (German)		80+ST
Rangolite (Czech.)		54+ST

Sodium sulphate (Fine)		6.00
Sodium sulphate (Coarse)		5.00
Sodium sulphide 50-52% (Flakes)		8.00
Sodium sulphide 58-60% (Flakes) (TCL)		21.00
Sodium sulphide pure (Flakes)		12.25
Sodium nitrite	(Resale)	1500
Sodium chlorite 80% (Spain)		94.00
Santobrite (Indian)		36.00
Soda Ash (Tata)		4.00
Soda Ash (Birla)		3.80
Soda Ash (Imp.)		3.50
Sodium bicarbonate		5.25
Sodium bisulphite		4.50
Sodium silicate		3.00
Sodium acetate		6.00
Sodium alginate		140+ST
Titanium Dioxide (Anatase)		50+ST
Titanium Dioxide (Rutile — RCR_2)		69+ST
Tartaric acid (Crystal)		94.00
Trisodium phosphate		4.80
Thiourea		72+ST
Urea (Tech)		2.75
Vacuum salt		1.00
Zinc Dust		30.00
Zinc Oxide		30.00
Zinc chloride powder (technical)		14.00
Zinc sulphate		4.00

SOLVENTS		Per kg
Acetic Acid (Glacial)	(Resale)	13.50
Acetic Anhydride	(Resale)	24.00
Acetone	(Resale)	15.00
Adipic Acid		51+ST
Aceto Acetanilide		50.00
Aniline Oil	(Resale)	44.00
Benzoate Plasticiser		33.00
Butyl Acrylate		100.00
Butyl acrylate		95+ST
Butyl stearate		36.00
Butanol	(Resale)	34.00
Benzyl chloride		24.00
Benzo trichloride		16.00
Benzoyl chloride		22.00
Bromine Liquid		42.50
Chloroform		24.50
Carbon Tetrachloride		13.00
Cellosolve		48+ST
Cyclohexanone		50+ST
Cyclohexanol		53+ST
Diacetone	(Resale)	35.00
Diethyl Oxalate		34.00
Diethylene glycol (DEG)		39+ST
Dioctyl Phthalate		52.00
Diallyl Phthalate		56.00
Dimethyl Phthalate		28.00
Dioctyl Adipate		52.00
Dibutyl Adipate		42.00
Dipentene		15.00
Dimethylamine 40%		12.00
Dimethylamine 60%		14.00
Ethyl Acetate		20.50
Ethyl Acrylate		46.00
Ethylene Dichloride		11.00
Ethylene Glycol		31+ST
Formic Acid (Imp)	(Resale)	27.50
Formaldehyde	(Resale)	7.00
Glycerine (CP)		50.00
Glycerine (IW)		48.00
Hydrogen peroxide 50%	(Resale)	28.50
Isopropyl Alcohol		17.50
Iso Butyl Alcohol		28.00
	(Resale)	30.00
Monoethanolamine	(Resale)	49.00
Melamine		52+ST
Methyl Ethyl Ketone		49+ST
Methyl Isobutyl Ketone		36.00
Methyl Acrylate		42.00
Methyl Dichloride	(Resale)	23.00

For your Regular Requirements of :

Butyl Stearate

Please Contact :

Manufacturers Representative

UNISONS

Davawala Bldg., 103/3, Princess Street, Bombay-400 002.

Tel: 251749-295318-311408-299622 Grams : "UNISOLES" Telex: 011-4309 UNI IN

For Your Requirements Of :

SORBITOL	METHANOL
CITRIC ACID	TOLUENE
PROPYLENE GLYCOL	BENZENE
GLYCERINE	XYLENE
PHENOL	ACETONE
I. P. A.	FORMALDEHYDE
HYDROGEN PEROXIDE	PARAFORMALDEHYDE
TITANIUM DIOXIDE	ETHYL ACETATE
M. E. K.	n-BUTANOL
CYCLOHEXANONE	CALCIUM CARBONATE

Please Contact :

RAM SHREE CHEMICALS

330, Samuel Street, 4th Floor, Room No. 402, Bombay-400 003.
Telephone : 329976/333475

For Your Regular Requirements of Following Products :

Bulk Drugs	Drugs Intermediates:
ATENOLOL	
CAFFEINE I.P.	CYANO ACETIC ACID
DIETHYL CARBAMAZINE CITRATE I.P.	
NIFEDIPINE U.S.P.	ORTHO NITRO BENZALDEHYDE
THEOPHYLLINE ANHYDROUS I.P.	
WHITE/YELLOW SOFT PARAFFIN I.P.	a-PICOLINIC ACID

Please contact manufacturers :

Trichem Laboratories

11, Lalwani Industrial Estate,
14, G. D. Ambekar Marg, Wadala,
BOMBAY-400 031.
Phone: 4123188/4127568

Available on Regular Basis

BEST QUALITY AT MOST COMPETITIVE RATES

- E.D.T.A., N.T.A. and their Salts
- E.D.T.A. TETRA SODIUM SALT SOLUTION OF DIFFERENT CHEALATION VALUE
- SARCOSINE 32% CONC.
  (Methyl Amino Acetic Acid)
  Stabilizer for RAPIDOGEN COLOURS

Contact Manufacturers :—

PARSHWANATH INDUSTRIES

1622, G.I.D.C. Phase II, CHHATRAL,
Tal. Kalol, Dist. MEHSANA (N. Guj.).
Telephone : 463096 (Ahmedabad)

(KNS-ADI)

Meta Cresol	46.00
Nitrobenzene	17.00
Nitric Acid (Con.) (RCF)	2.50
Ortho Cresol	30+ST
Phenol (Resale)	30.50
Propylene Glycol	33.50+ST
Polyethylene Glycol (No. 200)	39.00
Polyethylene Glycol (No. 400)	42.00
Polyethylene Glycol (No. 500)	42.00
Polyethylene Glycol (No. 1600)	14.00
Polyethyene Glycol (No. 4000)	38.00
Polyethylene Glycol (6000)	50.00
Para Cresol	40.00
Styrene monomer	50+ST
Sorbitol	18.50
Sulphuric Acid	2.10
Trichloroethylene	27.00
Triethanolamine (Resale)	49.00
Turpentine Oil (Germany)	8.00
Turkey Red Oil (50%)	11.75
Triethylamine	50.00
Vinyl Acetate Monomer	41.30

SOLVENTS	Per Litre
Benzene	10.00
N-Heptane	8.00
N-Hexane	8.75
Methanol	8.00
Solvent Naphtha Heavy	10.50
Solvent Naphtha Light	8.50
Toluene	12.00
Xylene	15.00

DYES INTERMEDIATES (PRICES ARE WITHOUT TAX AND EXCISE)	
Alphanaphthylamine	60.00
Alpha Naphthol (Imp.)	180.00
Aceto Acetic Ester (Methyl)	60.00
Ammonium Molybdate	200.00
Anthraquinone	70.00
Anthranilic Acid	60.00
2-Amino-4-Nitrophenol (Imp.)	130.00
Blue B. Base (Local)	230.00
Beta Naphthol (Atul)	58.00
Benzidine Dihydrochloride (BDH)	80.00
Bromamine Acid	375.00
BON Acid	110.00
Chicago Acid	280.00
Coach Acid	56.00
C. Acid (Imp.)	260.00
Cyanuric Chloride (Japan)	120.00
2, 4, DNCB	26.00
Dihydrothio PTOS (Imp.)	600.00
Dimethyl Aniline	58.00
Diethyl Aniline	155.00
Di-amino stilbene disulphonic acid	120.00
3, 3-DCB (Imp.)	180.00
Gamma Acid (Atul)	170.00
H. Acid (Atul)	155.00
G. Salt	58.00
Isophthalic Acid	40.00
J. Acid	255.00
J. Acid Urea	275.00
K. Acid	95.00
MDPS (German)	200.00
MNA	80.00
Meta Unido Aniline	140.00
MPD (Local)	125+Ex+Tax
MPD (Japan)	200.00
Naphthenic Acid	12.00
N-Methyl J. Acid	380.00
N-Methyl Aniline	115.00
Naphthalene (Refined)	23.00
Ortho Anisidine (OA Imp.)	85.00
Ortho Dichloro Benzene (ODCB)	11.25
OT Base	95.00
Para Dichloro Benzene (PDCB)	16.00
Para Anisidine (PA-Imp.)	110.00
Para Anisidine (PA-Local)	87.00
PNA	68.00
Para Cresidine (Imp.)	325.00
Para Amino Azo Benzene (India)	130.00
PNCB	28.00
Para Amino Acetanilide	145.00
1-Phenyl 3-methyl-5 Pyrazolone	120.00
Phenyl J. Acid	350.00
Para Amino Benzoic Acid	170.00
PT Base	88.00
Rhoduline Acid	475.00
Resist Salt	20.00
Resorcinol	142.00
Sodium Naphthionate	65.00
5-Sulpho-Anthranilic Acid	62.00
Sulphanilic Acid	25.00
Sulpho Tobias Acid	108.00
Trichloro Benzene (TCB)	15.00
Tobias Acid	118.00

NOW AVAILABLE! ANY QUANTITY, AS AND WHEN REQUIRED BY YOU

MONO-CHLORO ACETIC ACID

When it comes to chemicals, we care a little extra. Making sure to produce chemicals that meet exacting standards of quality, purity and reliability. Backed by research and thorough testing. Our customer service can help you improve your present products and develop new ones. And remember, we can meet your requirement in bulk... whenever and wherever you want. why not try ?

We manufacture: N.T.A. • E.D.T.A. & its salt • S.M.C.A. • Sodium Acetate & Hydrochloric Acid.

We market: Acetic Acid • Acetic Anhydride • Butyl & Amyl Alcohol • Ethyl & Butyl Acetate Acetaldehyde • Paraldehyde • D.B.P. • D.E.P.

ashok organic industries ltd.

Regd Office : 406 Sharada Chambers, 33 New Marine Lines, Bombay 400 020. Phones: 252236-252258 • Telex: 011-3258 Factory: Nandesari, Dist. Baroda. Phone: 271-[illegible]

Available Best Quality From Manufacturers :

SODIUM SULPHIDE 50-52%

(Flakes, Solid, Bits)

SULPHUR ROLL & SULPHUR POWDER

Please Contact:

ROLEX CHEMICAL INDUSTRIES PVT.LTD.

Office: 230, Samuel Street, Bombay-400 003.

Phone: Office: 325957-58 **Gram: "MANGALPUJA", Bombay**

Factory: Plot No. N-27, MIDC, Tarapur Industrial Area, Boisar, Dist. Thane, (Maharashtra)

For Your Requirement Of :

STABLE BLEACHING POWDER

(AVAILABLE CHLORINE 35% TO 38%)

VIKRAM BRAND

Packed In 25 Kgs and 50 Kgs HDPE Bags and 50 Kgs M.S. & G. I. Drums

Contact Manufacturers

SBP

VIKRAM BRAND

ISI

GRASIM INDUSTRIES LTD.

(FORMERLY GWALIOR RAYON)

91, Sakhar Bhawan, 230, Nariman Point, BOMBAY-400 021.

Phone : 2043454 **Telex : 011-4235 GRIR IN**

Delhi Marketing Office: 309, World Trade Centre, 1, Barakhamba Lane, New Delhi-110 001.

Tel: 3311472/3319596 **Telex: 31-62837**

The most reliable source for quality chemicals.

For Your Requirement Of :

Dimethyl Amino Ethanol NN-Dimethyl Acetamide

Diethyl Amino Ethanol Monomethyl Amino Ethanol

Contact Manufacturers :

M/s. SRINIVAS CHEMICAL INDUSTRIES LIMITED

HEAD OFFICE :

13, Madhuvan, B.S.D. Marg,
Deonar, Bombay-400 088.
Tel : 551 2545, 551 8221

FACTORY :

E-5, MIDC Plot,
Tarapur Industrial Area,
Boisar-401 506, Dist. Thane.
Tel : 505.

Bombay dyes market

(Prices as on 9th June 1988)

ACID COLOUR	Per Kg.
Acid Violet 4BS	143.00
Acid Maroon V	110.00
Acid Orange II	77.80
Acid Orange IIY	63.05
Acid Red A	107.25
Crosein Scarlet MOO	155.00
Acid Scarlet 3R	99.90
Acid Red 38N	135.00
Acid Red R2R	132.00
Acid Red RS	88 00
Acid Green V	230.00
Acid Patent Blue AS	250.00
Acid Coomasi Blue	200.00
Acid Yellow 5GN	65.00
Acid Red PG	85.00
Acid Red GRS	78.00
Acid Black 10 BX	121.95
Acid Black BX	98.40
Acid Black Wax	135.50
Procinil Yellow GS (ICI, UK)	265.00
Procinil Red GS (ICI, UK)	530.00
Procinil Blue RS (ICI, UK)	315.00
Procinil Scarlet G (ICI, UK)	600.00
Procinil Orange G (ICI, UK)	250.00
Procinil Rubine (ICI, UK)	550.00

DIRECT COLOURS	Per Kg.
Yellow 3GX	88.10
Gun Yellow RCH	124.00
Fast Yellow GCH	141.15
Yellow CFG Hly. Conc.	312.00
Fast Yellow GS	111.65
Fast Yellow CHRS	95.45
Viscose Orange A	166.15
Fast Orange GR	133.75
Red	96.90
Dark Tan	78.25
Red IIR	72.55
Red 4B	169.10
Bordeaux BW	132.30
Fast Scarlet 4BS	166.55
Red 12B	170.55
Bordeaux Hly. Conc.	194.00
Cotton Red N	117.05
Brill. Fast Helio B	278.00
Brill. Fast Helio 2B	297.00
Brill. Fast Helio 2RS	136.20
Brill. Fast Helio BS	116.10
Brill. Violet Extra	126.40
Blue 2B	86.60
Blue G	170.50
Sky Bue FB	188.25
Copper Blue GR	147.00
Fast Greenish Blue GL	114.60
Developed Black BT	116.10
Blue NB-2B	300.20
Blue NB-2BC	185.30
Developed Black NB-GHB	185.30
Green B	111.65
Green NB-B	188.25
Green 2B-N	188.25
Brown MR	154.40
Brown CN	107.25
Golden Brown G	140.35
Catechin G	120.50
Omega Tan	126.40
Catechin GS	102.80
Black E Hly Conc.	142.60
Black E Extra Hly. Conc.	142.60
Black NB-ER Hly. Cone.	310.50

DISPERSOL COLOURS	Per Kg.
Yellow 6G Powder	143.80
Red B 3B Powder	247.80
Red B 2B Powder	323.20
Red CB Powder	439.15
Red D2B Powder	477.40
Violet C 4R	521.90
Blue BG Powder	235.45
Blue BN Powder	103.75
Blue D 2R Powder	476.25
Navy BT Powder	243.90
Blue B 2G Powder	210.20
Black BT Powder	182.60
Blue BR Powder	390.20
Yellow 7GL	338.60
Yellow 5RX	218.80
Yellow 3G	367.25
Yellow	140.00
Yellow AL	135.30
Yellow Brown REL	247.50
Yellow FFL	463.60
Gold Yellow GG	259.70
Pink REL	247.00
Red REL	468.65
Red 2B	327.40
Red FB	324.20
Red Violet FBL	469.85
Orange 3R	196.65
Violet 3R	280.00
Violet RL	275.45
Violet 6R	485.75
Scarlet RR	214.80
Rubine 3B	223.00
Rubine CB	364.90
Blue GL	318.90
Blue BGF	636.50
Navy Blue RF	270.40
Brown 3REL	200.40
Black GEL	324.20
Dark Brown 3B	317.40

BASE COLOURS	Per Kg.
Fast Yellow GC	80.20
Fast Orange GC	135.45
Fast Scarlet R	166.90
Fast Scarlet RC	126.65
Fast Scarlet RCR	99.05
Fast Scarlet G	121.65
Fast Scarlet GN	91.50
Fast Scarlet GG	72.70
Fast Scarlet GGS	72.75
Fast Red B	203 20
Fast Red RC	119.15
Fast Red R Flakes	149.25
Fast Red TR	166.80
Fast Red TR Oil	183.15
Fast Red RL	237.10
Fast Red KB Oil	201.90
Fast Bordeaux GP	201.95
Fast Garnet GBC	94.00
Fast Violet B	505.60
Fast Blue BB	521.40

NAPHTHOL COLOURS	Per Kg.
ASG	217.00
AS	143.00
ASSW	279.75
ABBS	189.15
ASBO	195.65
ASD	175.50
ASOL	179.35
ASTR	279.75
ASPH	279.75
ASE	196.05
ASEI	184.40
ASLB	1632.60
ASBT	1817.00
ASWG	143.00
ASSG	397.70
ASSR	480.50

MOCION COLOURS	Per Kg.
olden Yellow HR	181.80
rill. Yellow H4G	117.85
upra Yellow H-8GP	168.55
rill Yellow HE6G	166.95
ellow H-E4R	276.05
rill. Yellow H7G	332.30
ellow M4R	243.95
ellow M GR	326.05
rill. Yellow M4G	177.10
rill. Yellow M8G	332.30
ellow M 3R	217.60
rill. Orange H 2R	241.85
rill. Red H 7B	157.95
rill. Orange M 2R	313.15
rill. Red H 8B	169.45
rill. Scarlet H RN	245.05
upra Red H-3BP	179.80
rill. Red H-F3B	243.45
rill. Magenta HB	167.00
rill. Red M 5B	98.90
rill. Red M 8B	173.70
rill. Pink MB	137.10
rill. Magenta MB	121.55
rill. Purple H-3R	180.20
rill. Purple H-7R	175.40
avy Blue H 3R	298.50
rill. Blue H-GR	366.55
rill. Blue H 5G	173.10
lue H 5R	283.85
rill. Blue H 7G	178.70
rill. Blue H 7RX	358.15
urquoise HA	234.45
upra Blue H-3RP	335.70
upra Turquoise H 2GP	181.50
lue H-ERD	305.80
avy Blue H ER	258.60
lue H 5RX	269.30
Navy Blue M 3R	310.95
Brill. Blue MR	331.70
Brill. Blue M RX	214.20
Brill. Blue M-G	382.30
Blue M 4GD	344.60
Navy Blue M RB	318.75
Turquoise M-G	197.85
Brill. Blue M GX	302.50
Blue 3R Acra Powder	718.20
Dark Brown H 6R	248.45
Cobalt Oxide (per kg.)	285.00
Green H 4BD	269.80
Green H-E4BI	169.80
Red Brown H IF	143.25
Orange Brown H 28	209.05
Brown M GRN	188.80
Black H-N	283.35

SULFUR COLOURS	Per Kg.
Navy Blue	99.85
Green G	198.55
Black Grains Extra	63.05
Black Grains OG	64.55
Black GXE Conc.	61.60
Black GXE	52.75
Black GXR	61.60
Black Grains 800	54.20
Black EXR Grains	64.55
Black EXR Grains 800	51.25

VAT COLOURS (ICI)	Per Kg.
Yellow 5G Powder Fine	673.15
Yellow 5G Supra Disperse	439.30
Yellow 5G Acra Con.	628.75
Yellow 3R Powder	588.85
Gold Orange 3G Pdr. Fine	952.15
Brill. Orange 6R Pdr. Fine	624.35
Gold Orange 3G Supra Disp.	601.30
Brill. Orange 6RX Powder	394.30
Brill. Red 3B Pdr. Fine	997.80
Brill. Red 3B Supra Disp.	713.20
Brill. Purple 4R Conc. Pdr.	470.75
Brill. Purple 3R Acra Powder	690.85
Brill. Purple 2R Hly Conc.	597.90
Brill. Purple 4R Supra Disp.	500.05
Brill. Purple 2R Acra Conc.	625.95
Blue R Powder Fine	542.15
Blue BC Conc. Pdr. Fine	522.50
Blue BC Acra Conc. Pdr. Fine	762.70
Blue R Conc. Pdr. Fine	577.65
Blue RR Supra Powder	629.35
Blue Conc. Powder	645.80
Brill. Blue 2R Hly. Conc.	378.55
Brill. Blue 2R Supra Disp.	115.65
Dark Blue 2R Powder Fine	389.25
Blue BC Supra Disp.	359.40
Jade Green XBN Powder Fine	438.20
Jade Green XBN Acra Conc. Powder	823.90
Jade Green 2G Pdr. Fine	419.65
Jade Green 2G Ptg. Faste	125.40
Jade Green XBN Ptg. Paste	126.00
Jade Green 2G Supra Disp.	496.00
Olive Green B Pdr. Fine	399.90
Olive D Pdr. Fine	444.30
Olive Green B Supra Disp.	308.26
Jade Green XBN Supra Disp. (N)	327.30
Olive OMW Pdr. Fine	698.55
Olive OMW Supra Disp.	538.05
Olive R. Pdr. Fine	422.96
Olive D Supra Disp.	361.70
Olive R Supra Disp.	363.90
Olive D. Ptg. Paste	193.00
Olive Green B. Ptg. Paste	199.10
Olive Green B Acra Conc.	542.75
Olive R Acra Conc.	640.00
Olive Green B Acra Conc.	542.75
Brown R Pdr. Fine	835.00
Brown G. Pdr. Fine	795.00
Brown R Pdr. Fine	659.75
Dark Brown 3R Pdr Fine	685.00
Brown G. Supra Disp.	449.90
Brown 2G Supra Disp	554.00
Brown R Supra Disp.	422.95
Brown BR Powder	719.00
Dark Brown 3R Ptg. Paste	213.15
Dark Brown 3R Supra Disp.	414.55
Brown G Acra Conc.	733.95
Brown R Acra Conc.	700.00
Grey M. Powder Fine	768.80
Grey M. Supra Disp.	585.45
Blue BC Acra Conc. Pdr. Fine	762.70
Direct Black AC Supra Disp.	330.35
Direct Black AC Pdr. Fine	474.70
Direct Black CH Supra Disp.	393.20
Direct ACD Ptg. Paste	217.15

Madras Market

Market was brisk with good inquiries and good supplies. Hydros continues to be in demand. Benzene and Toluene prices shot up due to poor arrivals. Diethylene Glycol prices ruled high on account of good demand and poor availability. Prices of products based on ethylene oxide also went up because of increase in price of Ethylene oxide by manufacturers of NOCIL & IPCL. Prices of Di-octyl phthalate and Dibutyl phthalate went down because of good availability and lack of demand.. Menthol prices went up due to speculative marketing by upcountry traders.

(MADRAS MARKET RATES AS ON JUNE 11, 1988)

Acetic Acid — Glacial (per kg)	17.00
Acid Slurry (Soft) (per kg)	26.00
Aluminium Sulphate Iron free (per tonne)	1,700.00
Ammonium Bi-carbonate (per 25 kg.)	125.00
Ammonium Chloride SPIC (per tonne)	2,400.00
Bleaching Powder — Mettur (per 25 kgs. bags)	100.00
Borax Granular	650.00
Cresylic Acid 100% (per kg)	85+E.D
Meta Cresol 40/42% (per kg)	47.00+E.D
Para Cresol 80/85% (per ton)	60+E.D
Caustic Soda Flakes (Mettur) (per ton)	8,800.00
Caustic Soda Flakes (Andhra Sugar)	8,800.00
Citric Acid — Indian (per kg)	45.00
Copper Sulphate (per 50 kg.)	1000.00
Formic Acid (India) (per kg)	27.00
Formaldehyde (per kg)	8.00
Glycerine (per kg)	42.00
Hydrosulphite of Soda TCPL (per kg)	35.00
Hydrosulphite of Soda IDI (per kg)	38.00
Hydrosulphite of Soda BASF (per kg.)	38.00
Hydrogen Peroxide (India) (per kg.)	35.00
Hyflo Supercell	19.50
Magnesium Carbonate Light	18.00
Potassium Bichromate (per kg)	24.00
Phosphoric Acid (per kg)	18.00
Phthalic Anhydride (per kg)	24.00
Pentaerythritol (per kg)	52.00
Paraffin Wax (per kg)	13.50
Oxalic Acid (per kg.)	20.00
Soda Ash (TAC) (Per 75 kg) ..	306.00
Soda Ash (TATA) (per 75 kg)	308.00
Sodium Cyanide Indian (per kg.)	47.00
Sodium Cyanide Degussa (per kg)	70.00
Sodium Bichromate (per kg)	16.50
Sodium Bicarbonate (per 50 kg)	280.00
Sodium Nitrite (per 50 kg)	710.00
Sodium Nitrate (per 50 kg)	425.00
Sodium Silicate (per tonne)	4500.00
Sodium Sulphate (per tonne)	3500.00
Sodium Sulphide Flakes (per tonne)	13,000.00
Sodium Bi-sulphite (per 50 kg)	280.00
Stearic Acid (per kg)	32.00
Trisodium phosphate (per 50 kg)	380.00
Titanium Di-oxide Indian TTP (per kg)	48.00
Titanium Di-oxide Indian Rutile (per kg)	58.00
Urea Tech (per tonne)	2800.00
Zinc Oxide (per kg.)	34.00
Zinc Chloride Powder (per kg.)	13.00
Zinc Sulphate (per tonne)	4,500.00
Di-octyl phthalate (per kg.)	46.00
Di-butyl Phthalate (per kg)..	46.00
Hexamine (per kg)	28.00

SOLVENTS

Acetone (I.O.C.) (per kg)	16.00
Isopropyl Alcohol NOCIL (per kg.)	21.00
Diacetone Alcohol NOCIL (per kg)	26.50
Benzene SAIL (per kg)	16.00
Diethylene Glycol NOCIL (per kg)	35.00
Butanol NOCIL (per kg)	35.50
Toluene SAIL (per litre)	12.00
Xylene IPCL (per litre)	16.00
Phenol HOC (per kg)	28.00
Turpentine (per litre)	16.50
Sorbitol (per kg)	35.00
Trichloroethylene MCIC (per kg)	23.50
Carbon Tetra Chloride (per kg)	15.50
Chloroform (per kg)	25.00
Methylene chloride (per kg)	24.00
Methyl Ethyl Ketone (per kg.)	42.00
Cellosolve (per kg)	50.00
Triethanolamine (per kg)	23.50
Ethyl Acetate (per kg.)	22.00
Butyl Acetate (per kg)	38.00
Methanol (per litre)	9.00

Delhi Market

DELHI: JUNE 10 (NNS) — A sudden spurt of Rs. 40 in menthol prices provided the main feature of trading in the Delhi chemicals market during last week, reports NNS. Sodium nitrite, and paraffin wax slipped by Rs. 25/30 due to poor offtake. Turnover was moderate.

Menthol medium and bold jumped up by Rs. 40 each at Rs. 235 and Rs. 240 per kg. respectively due to fall in production this year in Punjab and U.P. along with good export commitments to Hong Kong. Menthol flake flared up from Rs. 188 to Rs. 225 on stocking tendency caused by fall in supply from Uttar Pradesh. Menthol oil firmed up by Rs. 20 at Rs. 170. DMO quoted higher at Rs. 85 against Rs. 75. Arrivals were negligible of new crop mentha from U.P. Within a month its prices recorded a new high of Rs. 60 per kg.

Boric acid technical flared up from Rs. 980 to Rs. 1050 on good stockists demand on rumour of hike its prices by manufacturers. Borax granular and crystal ruled static at their previous level.

Acid slurry soft and hard moved up by Re. one at Rs. 24 and Rs. 32 per kg. on good seasonal offtake along with increased prices of raw material Sodium nitrate looked up by Rs. 10 at Rs. 450 on reduced offerings. Soda ash and soda bicarb quoted higher by Rs. 2/5 on reduced inflow.

Titanium dioxide Anatase slipped by Re. one at Rs. 47.50 on poor offtake and increased arrivals. RC-822, however, met with fresh offtake and appreciated from Rs. 63 to Rs. 64. Ammonium chloride sahu inferior hardened by Rs. 10 at Rs. 125 in the absence of fresh arrivals. Superior quality ruled static at Rs. 180.

Sodium nitrite dropped by Rs. 25 for want of support by bulk consumers. Paraffin wax declined by Rs. 30 at Rs. 600 on poor enquiries by candle manufacturers. Refind wax also turned easy by Rs. 30 at Rs. 700. Formic acid softened by 50 paise at Rs. 26 on poor demand. Sodium hydro sulphite Damosha and Tamil Nadu eased by 50 paise each at Rs. 38, in the absence of demand by gur khandsari manufacturers.

Dyes and colours remained unchanged.

(DELHI MARKET RATES AS ON JUNE 10, 1988)

Ammonia Bicarb (per 25 kg)	118.00
Mercury (per flask)	10 500.00
Soda ash (per bag)	272-307.00
Ammonium chloride (per 50 kg)	125-180.00
Caustic soda solid	No Stock
Caustic soda flakes (per 50 kg)	410-415.00
Citric acid (per 50 kg)	2050-2400.00
Stable Bleaching Powder Shriram (per 25 kg)	95.00
Stable Bleaching Powder KCI (per 25 kg)	85.00
Stable Bleaching Powder MODI (per 25 kg.)	90.00
Sod. Bicarbonate (per 50 kg)	265-285.00
Sod. Hydro Sulphite (per kg)	38-40.00
Rangolite (per kg)	48-65.00
Boric acid Technical (per 50 kg)	1050.00
Paraffin wax (per 50 kg)	600.00
Tartaric acid (per 50 kg)	6,400.00
Borax Granular (per 50 kg)	575.00
Borax Crystal (per 50 kg)	600.00
Sodium Nitrate (per 50 kg)	450.00
Sodium Nitrite (per 50 kg)	725-750.00
Camphor Powder (per kg)	87.00
Camphor Thal (per kg)	97.00
Menthol Medium (per kg)	225.00
Menthol Flakes (per kg)	235.00
Menthol Bold (per kg)	240.00
Glycerine (per kg)	42-43.00
Sodium Silicate (per quintal)	200-250.00
Hexamine (per kg)	35.00
Acetic Acid Glacial (per kg)	13-13.50
Copper Sulphate (per quintal)	1800-2100.00
Formic acid (per kg)	26.00
Formaldehyde (per kg)	8.00
Hydrogen Peroxide (per kg)	30-32.00
Calcium Carbonate (per tonne)	2500-4000.00
Acid Slurry Soft (per kg)	24.00
Acid Slurry Hard (per kg)	32.00
Phosphoric Acid (per 50 kg)	825.00
Pot. Nitrate (per quintal)	900-1200.00
Pot. Permanganate (per 50 kg)	2300.00
Sod. Bichromate (per 50 kg)	1050-1150.00
Tri-Sod. Phosphate (per 50 kg)	325-360.00
Titanium Dioxide Anatase (per kg)	47.50
Titanium RC-822 (per kg)	64.00
Zinc Oxide (per mt)	32,000-40,000.00
Phenol Carbolic Acid (per kg)	33.00
Carbon Tetrachloride (per kg)	19.00
Chloroform (per kg)	28.00
Sodium Sulphate (per 50 kg)	160-170.00
Naphthalene Balls (per 50 kg)	1400.00

DYES & COLOURS	per kg
Naphthol AS	150.00
Naphthol ASG	235.00
Naphthol ASBS	200.00
Naphthol ASTR	302.00
Naphthol ASOL	191.00
Naphthol ASBO	208.00

DIRECT DYES	(per kg)
Black E. Conc.	92-155.00
Diazo Black B.T.	125.00
Green B	119.00
Blue 2-B	86.00
Sky Blue FB	200.15
Basic Auramine O' Conc.	55-100 00
Basic Rhodamine B.300%	220-320.00
Basic Methylene Blue	92-130.00
Basic Violet	142-160.00
Basic Malachite Green	160-185.00
Acid Orange	45-52.00

Plastics Materials Imported

BOMBAY

(Cost of Imported Item is CIF Value)

(From 28.1.88 to 29.1.88)

(Contd. from the previous issue)

PVC RESIN EMULSION GRADE: From Iran: Hukam Singh Swinder Singh, 20 Mts., Rs. 2,86,690.

PVC RESIN MAN GRADE: From Mexico: Crystal Containers, 50 Mts., Rs. 6,79,862; Oriental Extrusion Pvt. Ltd., 50 Mts, Rs. 6,90,044.

PVC RESIN PASTE GRADE: From Mexico: Jasch Plastics India, 25 Mts., Rs. 3,45,341.

PVC RESIN SUSPENSION GRADE: From Korea: Entremonde Polycoaters Pvt. Ltd., 50 Mts., Rs. 53,700; More Water Pipes Ltd., 150 Mts., Rs. 19,54,662; MYSS Electricals (P) Ltd., 50,000 kgs., Rs. 6,53,070; Panchmal Plastics Pvt. Ltd., 150 Mts., Rs. 19,56,635; Pipes Pvt. Ltd., 50 Mts., Rs. 6,52,664; 100 Mts., Rs. 13,05,328; Prakash Pipes & Industries, 100 Mts., Rs. 27,36,-250; Radio Cables Pvt. Ltd., 50,000 kgs., Rs. 7,52,418; Radiant Cables Pvt. Ltd., 50 Mts., Rs. 6,56,465; Selfshine Inds., 100 Mts., Rs. 13,08,114; Vassha Agro Plast P. Ltd., 80 Mts., Rs. 6,52,132; 100 Mts., Rs. 13,04,-264; From Romania: Prakash Pipes & Industries, 300 kgs., Rs. 37,91,226; From Yugoslavia: Bharat Pipes & Fittings Ltd., 500 Mts., Rs. 66,86,375.

VINYL RESIN: From Iraq: Manilal Trikamji Shoney, 5,102.91 kgs., Rs. 2,77,516; From USA: Garware Plastics & Polyester Ltd., 5,102 kgs., Rs. 2,19,092.

Materials Exported

BOMBAY

(Cost of Exported Item is CIF Value)

(From 26.1.88 to 31.1.88)

B.H.C. 5% DUST: To Dubai: All India Medical Corporation, 5,000 kgs., Rs. 46,000.

CAUSTIC SODA: To Colombo: Grasim Industries Ltd., 50 Mts., Rs. 2,34,000.

CHROME PIGMENTS: To Muscat: Sudarshan Chemical Industries Ltd., 2,000 kgs., Rs. 52,690.

DEHYDRATED CASTOR OIL: To Genoa: Enlite Chemical Ind. P. Ltd., 15.360 Mts., Rs. 4,03,-520; To Yokohama: Enlite Chemical Industries P. Ltd., 14,360 kgs., 4,01, 701.

DICALCIUM PHOSPHATE: To Colombo: National Traders & Exporters, 19 kgs., Rs. 70,600; To Kobe: India Gelatine & Chemicals Ltd., 40,000 kgs., Rs. 1,10,-824; To Penang: Nayankumar & Co., 100,000 kgs., Rs. 2,59,098.

DINITRO CHLORO HEXANE: To Busan: Chemisynth Pvt. Ltd., 19,140 kgs., Rs. 2,92,396.

ETHION TECH.: To Keelung: Rallis India Ltd., 2,000 kgs., Rs. 1,43,000.

INORGANIC CHEMICALS: To Colombo: Grasim Inds. Ltd., 60,000 kgs., Rs. 1,75,000.

For Your Regular Requirements Of :

AMMONIUM BICARBONATE (MANGALA)
BLEACHING POWDER (MODI & METTUR)
SULPHATE OF ALUMINA (AAC)
CAUSTIC SODA FLAKES & SOLID
SODIUM THIOSULPHATE (HYPO)
SODIUM BISULPHITE & SULPHITE
SODIUM NITRITE & NITRATE
SODIUM METASILICATE (KAILASH)
SODIUM SULPHIDE FLAKE & CHIPS
SODIUM SULPHATE (GOLDEN)
SODIUM ACETATE (CAP)
SODIUM FORMATE (KUMAR)
OXALIC ACID (EXCEL & KUMAR)
TRISODIUM PHOSPHATE (IRE)
BORIC ACID POWDER
SODA ASH & R. B.
CITRIC ACID (COMMERCIAL & CITURGIA)
ACETIC ACID (TDC)
DI-AMMONIUM PHOSPHATE
TITANIUM DIOXIDE
HYDRO SULPHITE OF SODA
SOLVENT DEG.
BORAX (GRANULAR & CRYSTALS)
AND ALL INDL. CHEMICALS.

Please Contact :

M/s. MADANRAJ KHICHA

(ESTD. 1963)

No. 86, Govindappa Naick Street,
MADRAS-600 001.

Gram : SESHMADAN Phones Office : 561850 563381 Resi. : 518263/515106.

INSECTICIDES: To Barcelona: Excel Industries Ltd., 13,200 kgs, Rs. 10,30,928.

IRON OXIDE: To Manik: Bharat Pulverising Mills Pvt. Ltd., 13,650 kgs., Rs. 14,207.

ISO VALERIC ACID: To Busan. Kalyani Steels Ltd., 1,000 kgs., Rs. 1,79,990.

MENTHOL: To Colombo: Jindal Exports P. Ltd., 2,300 kgs., Rs. 3,57,000.

MIDDLE CHROME: To Muscat: Sudarshan Chemical Inds Ltd., 1,000 kgs., Rs. 26,342.

PENTAERYTHRITOL: To Antwerp: Aegeis Chemical Inds. Ltd., 20 Mts., Rs. 3,11,482.

PESTICIDES: To Marseilles: Ficom Organics Ltd., 36 Mts., Rs. 9,13,660.

PHOSPHORUS TRICHLORIDE: To Bangkok: United Phosphorus Ltd., 500 kgs., Rs. 69,266.

PHTHALIC ANHYDRIDE: To Kaoshiang: Mysore Petrochemicals Ltd., 1,62,000 kgs., Rs. 12, 34,690.

RED OXIDE: To Manila: Bharat Pulverising Mills Pvt. Ltd., 59,925 kgs., Rs. 85,399.

MADRAS

(Cost of Exported Item is CIF Value)

(From 21.1.88 to 27.1-88)

AMPICILLIN TRIHYDRATE: To Hamburg: TTK Chemicals Ltd., 500 kgs., Rs. 3,91,752.

L CYSTINE: To Munchen: Srinivasa Cystine Ltd., 7,000 kgs., Rs. 17,61,190.

FIBRE DRUGS: To Dubai: Maschmeijar Aromatics (India) Ltd., 1,000 kgs., Rs. 2,62,200.

PHTHALIC ANHYDRIDE: To China: Thirumalai Chemicals Ltd., 1,50,000 kgs., Rs. 11,40, 464; To Shanghai: Thirumalai Chemicals Ltd., 150 Mts., Rs. 11,40,464.

POTASSIUM FELDSPAR: To Port Kelang: Kalpana Agencies, 990 Mts., Rs. 3,30,149.

RED IRON OXIDE POWDER: To Kobe: Tiffine's Barytes. 18,-000 kgs., Rs. 18,737.

RED OXIDE: To Illychevsk: Larsen and Toubro Ltd., 145 kgs., Rs. 1,550.

RED OXIDE POWDER: To Antwerp: Kalpana Agencies, 41,-857 kgs., Rs. 56,619;

SODIUM HYDROSULPHITE: To Antwerp: Tamil Nadu Chemical Products Ltd., 82,500 kgs., Rs. 11,14,510; To Turkey: Tamil Nadu Chemical Products Ltd., 16,500 kgs., Rs. 2,01,855.

SYNTHETIC RESIN: To Keelung: Satya Cashen Chemicals. 200 kgs., Rs. 2.320.

Drug Materials Exported

BOMBAY

(Cost of Exported Item is CIF Value)

(From 26.1.88 to 31.1.88)

CALCIUM GLYCEROPHOSPHATE BPC 63. To Singapore. Industrial Trading Co., 1,000 kgs., Rs. 1,13,679.

CHLOROPHENIRAMINE MALEATE BP 80: To Hamburg: Mehta Pharmaceutical Inds. 500 kgs., Rs. 2,08,097.

CIMETIDINE. To Abu Dhabi: Cadila Laboratories Pvt. Ltd., 23.06 kgs., Rs. 2,45,000.

DRUGS: To Colombo: Bombay Drug House Pvt. Ltd., 138.5 kgs., Rs. 81,000

FOR YOUR REQUIREMENTS OF :

Benzoic Acid

Sodium Benzoate

As per I.P/ISI/C.P. Specification at most competitive rates

Contact Manufacturers :

M/s. Rohit Organics (P) Ltd.

B-22, Industrial Area, Bulandshahr Road,
GHAZIABAD-201 001. (U.P).

Phones : Office : 8-45067 Resi. : 8-42472

ERYTHROMYCIN STEARATE BP 80: To Hamburg: Bombay Drug House Pvt. Ltd., 500 kgs., Rs. 4,05,000.

IODO CHLORO HYDROXY-QUINOLINE USP: To Bangkok. Amphray Laboratories, 500 kgs., Rs. 1,16,923: 1,000 kgs., Rs. 2,14,768.

TRIMETHOPRIM BP 80: To Hamburg: Bombay Drugs & Pharmls Pvt. Ltd., 500 kgs., Rs. 1,82,000.

Dyes & Dye Intermediates Exported

BOMBAY
(Cost of Exported item is CIF Vaiue)
(From 26.1.88 to 31.1 88)

ACID BLACK 1: To New York: Monarch Dyestuff Ind., 2,500 kgs., Rs. 1,39,410.

ACID GREEN V: To Keelung. Archana Finance Corpn., 200 kgs., Rs. 54,533.

2(4-AMINOPHENYL SULFONYL) ETHANOL SULPHATE ESTER: To Osaka: Gokul Enterprises, 10,638.3 kgs., Rs. 6,03, 113.

ANTHRAQUINONE: To Hong Kong: Indian Dyestuff Inds. Ltd., 15,000 kgs., Rs. 6,72,036.

AURAMINE O: To New York: Sahyadri Dyestuffs & Chem., 1,500 kgs., Rs. 61,695.

COALTAR DYES: To Genoa: Indian Dyestuff Inds. Ltd., 500 kgs., Rs. 1,23,353; To New York: Indian Dyestuff Inds. Ltd., 1,500 kgs., Rs. 1,08,777

COALTAR DYES VAT GOLDEN ORANGE: To Bangkok: Indian Dyestuff Ind. Ltd., 500 kgs., Rs 96,540.

COALTAR DYES VAT OLIVE T: To Bangkok: Indian Dyestuff Inds. Ltd., 3,981 kgs., Rs 1,18, 906.

COLOUR-CHEM BLACK FBRK: To Bangkok: Colour-Chem Ltd., 1,250 kgs., Rs. 19,330; To Singapore: Colour-Chem Ltd., 250 kgs., Rs. 3,886.

COLOUR-CHEM BLUE FFG EX CONC.: To Bangkok: Colour-Chem Ltd., 200 kgs., Rs. 10,714; To Penang: Colour-Chem Ltd., 100 kgs., Rs. 6,218.

COLOUR-CHEM BORDEAUX: To Penang: Colour-Chem Ltd., 100 kgs., Rs. 7,513.

COLOUR-CHEM GREEN FB EX CONC.: To Bangkok: Colour-Chem Ltd., 250 kgs., Rs. 16,937.

COLOUR-CHEM RED FFG EX CONC.: To Bangkok: Colour-Chem Ltd., 150 kgs., Rs. 9,099; To Penang: Colour-Chem Ltd., 300 kgs., Rs. 19,430.

COLOUR-CHEM VIOLET: To Penang: Colour-Chem Ltd., 100 kgs., Rs. 8,096.

COLOUR-CHEM YELLOW F7G EX CONC.: To Bangkok: Colour-Chem Ltd., 100 kgs., Rs. 4,088.

DYE INTERMEDIATES: To Bangkok: Vivid Exports, 3,379.2 kgs., Rs. 1,15,338; To Barcelona: Chemisynth Pvt. Ltd., 19,140 kgs., Rs. 2,63,113; Vivid Exports, 63,795 kgs., Rs. 5.59,472. To Busan: Metro Exporters Pvt. Ltd., 4,590 kgs., Rs. 4,13,836; To Genoa: Mangalya Trading & Investments P. Ltd., 30,000 kgs., Rs. 12,64,000; Sandoz (India) Ltd., 1,379 kgs., Rs. 1,00,774; To Keelung: Jindal Dye Intermediates Pvt. Ltd., 25,779 kgs., Rs. 8,04,500; Metro Chem Industries, 2,139 kgs., Rs. 2,18,183, Vivid Exports, 6,417 kgs. Rs. 4,31,186; To Los Angeles: G. K. Shah & Co., 16 kgs., Rs. 1,280. To New York: Metro Chem Industries, 5,396 kgs., Rs. 5.29,446.

AVAILABLE :

SORBITOL — Liquid/Powder
VITAMIN "C" — Plain/Coated
Sodium Benzoate I. P.
Sulphuryl Chloride
Bile Salt

Please Contact :

MATANGI TRADING CORPORATION

2-A/B, Pahlajkunj, Shivaji Path,
Opp. Laxmi Book Depot Thane (West)-400 601.
Phone :595720 505559, Resi. : 5615731/594517 Cable : "MATANGI"

To Rotterdam: Colour-Chem Ltd., 9,600 kgs., Rs. 10,68,038; To Yokohama: Sadhana Nitrochem Ltd., 15,000 kgs., Rs. 5,22,050.

GAMMA ACID: To Genoa: Metrochem Industries, 3,282.725 kgs., Rs. 2,90,565.

H. ACID: To Jakarta: Metro Exporters Pvt. Ltd., 22,820 kgs., Rs. 10,88,832.

INDIAN ORIGIN METANIL YELLOW: To Djibouti: Castlon Colour Chem Inds., 2,400 kgs., Rs. 58,441.

K. ACID: To Kobe: Metro Chem Industries, 8,061.1 kgs., Rs. 5,13,080.

METANIL YELLOW GDC: To Jakarta: Golden Dyes Corpn. Ltd., 975 kgs., Rs. 61,610.

METANIL YELLOW R: To Jakarta: Golden Dyes Corpn. Ltd., 4,050 kgs., Rs. 1,90,700.

META PHENYLENE DIAMINE 4 SULFONIC ACID: To Bangkok: Vivid Exports, 1.278 kgs., Rs. 1,06,186.

ORGANIC PIGMENTS: To Sydney: Sudarshan Chemical Inds., 20.7 kgs., Rs. 2,403.

OTHER THAN CHROME PIGMENT DYESTUFFS: To Jakarta: Colour-Chem Ltd., 500 kgs., Rs. 65,850.

PHTHALOCYANINE BLUE: To Sydney: Sudarshan Chemical Industries, 700 kgs., Rs. 76,982.

PHTHALOCYANINE GREEN GNX: To Bangkok: Colour-Chem Ltd., 1,500 kgs., Rs. 1,55,825: 1,500 kgs., Rs. 1,70,309

PIGMENT DYESTUFF: To Bangkok: Colour-Chem Ltd., 2,000 kgs., Rs. 1,49,510; To Rotterdam: Colour-Chem Ltd., 8,800 kgs., Rs. 13,76,215.

REACTIVE BLACK B: To Genoa: Monarch Dyestuffs Inds. 1,000 kgs., Rs. 95,349.

SYNTHETIC COALTAR DYES: To Barcelona: Indian Dyestuff Inds. Ltd., 1,000 kgs., Rs. 2,03,-440; To Genoa: Chemiequip Ltd., 4,250 kgs., Rs. 3,60,825; Jaysynth Dyechem Pvt. Ltd., 5,300 kgs., Rs. 59,02 066; To Busan: Space International, 1,000 kgs., Rs. 87,628; To Keelung: Neeta Agencies, 300 kgs., Rs. 79,905: To Marseilles: Jaysynth Dyechem Pvt. Ltd., 500 kgs., Rs. 93,556; To Miami: Shree Dyechem, 2,450 kgs., Rs. 2,67,000; To New York: Atic Industries Ltd., 4,578.47 kgs., Rs. 21,02,496; Bhoir Import Export P. Ltd , 2,000 kgs., Rs. 1,56,314; Golden Dyes Corpn. (India) P. Ltd., 1,000 kgs, Rs. 1,94,000; 1,500 kgs. Rs. 1,38,900; To Valparaiso: Mangalya Trading & Investments Pvt. Ltd., 300 kgs. Rs. 29,382; 500 kgs., Rs. 40,851.

SYNTHETIC ORGANIC DYES: To Bangkok: Esiee Chemicals,, 1,000 kgs., Rs. 1,30,756; To Busan: Brinda Export Agencies, 500 kgs., Rs. 43,200; Space International, 500 kgs , Rs. 47,700; To Colombo: Devarsons P. Ltd., 500 kgs., Rs. 31,750; To Genoa: Monarch Dyestuff Inds., 2,500 kgs., Rs. 2,38,577; To New York: Navin Chemicals Enterprises, 5,000 kgs., Rs. 2,57,010.

SYNTHETIC ORGANIC DYESTUFFS: To Busan: Jaysynth Dyechem Pvt. Ltd., 1,000 kgs., Rs. 2,53,866.

VINYL SULPHONE: To Acapulco: Liberty Exports Pvt Ltd., 1,283.42 kgs., Rs. 1,27,464.

VINYL SULPHONE ACETANILIDE ESTER BASE: To Bangkok: Metro Chem. Inds., 10,750 kgs., Rs. 5,88,235.

ISI (FOOD GRADE)

K.M.S. (POTASSIUM META BI SULPHITE)

S.M.S. (SODIUM META BI SULPHITE)

CONTACT :

M/s. GANGA CHEMICALS

124, Nainiappa Naicken Street,
Madras-600 003.
Tel. : 56 11 74.

METHACRYLIC ACID (Gujmet)

(As per International Standard in Standard Packing at reasonable price, continuous supplies assured)

Manufactured By :

Gujarat State Fertilizers Company Limited., Vadodara

Marketed By :

Industrial Trading Agency

BRANCH
Vadodara-390 001.
Tel. No. : 554690

OFFICE :
36, Tamarind Lane, Fort, Bombay-400 023.
Tel. Nos. : 272405/270393

(Inquiries for Acetone Cyanohydrine (GUJACH) and Methyl Methacrylate Monomer (GUJMER) for chemical application also solicited.)

A Chief Executive of
Leading Public Limited
Chemical Company having
BARODA & AHMEDABAD OFFICE
is interested in having
DISTRIBUTORSHIP DEALERSHIP
for GUJARAT/MAHARASHTRA
FOR INTERMEDIATES &
FINE CHEMICALS

For Your Requirements Of :

- Calcium Chloride anhydrous, fused
- Magnesium Chloride (Crystal & Lumps)
- Aluminium Chloride (Anhydrous)
- Stearic Acid & Oleic Acid (Godrej)
- Stearates & PVC Stabilizers
- Sodium bi-sulphite & Sulphite
- Dyes — intermediates-2 5 di methoxy aniline

Packing Material

- PVC * LDPE & HDPE

Contact :

ORGANO INC

9, Aroonodaya Society, Alkapuri, Baroda-390 005.
Phone: 325968/323342 Resi.: 322895

FOR YOUR REQUIREMENTS OF :

HYFLOSUPERCELL
POTASSIUM FERROCYANIDE
MALEIC ANHYDRIDE
MELAMINE
THIOUREA
CITRIC ACID
TARTARIC ACID
PECTIN
SOYA LECITHIN
FORMIC ACID
AMMONIA BICARB
ACRYLAMIDE
DIMETHYL AMINE (RCF)
GLYOXAL 40%
PARAFORMALDEHYDE
ACETONE
PENTAERYTHRITOL
SODIUM GLUCONATE

Please Contact :

JAYDIP AGENCIES

2-B, Ganga Vihar, 94, Kazi Sayed Street, Bombay-400 003.
Phone Office: 343316/331357, Resi. : 6366280.
Gram: "JAYDIPIMPO" Bombay-56.
OUR ASSOCIATES :— M/s VASANI I. MEHTA.

For Your Requirements Of :

Di Octyl Phthalate (D.O.P.)
Di Butyl Phthalate (D.B.P.)
Di Butyl Maleate (D. B. M.)
Di Octyl Maleate (D.O.M)
Di Octyl Adipate (D.O.A.)
Butyl Stearate

Please Contact Manufacturers :

SAVITA ORGANIC CHEMICAL INDUSTRIES

1218, Dalamal Tower, Plot No. 211, Nariman Point, Bombay-400 021.
Phone : 230006, 231192, 233554, 233562

For Your Regular Requirements Of :

Acetonitrile
Acetyl Chloride
Acrylamide
Acrylonitrile
Cyclohexane
Di Methyl Formamide
Di Methyl Sulphoxide
Epichloro Hydrine
Ethylene Dichloride
Formic Acid — 99% & 85%
Hydroxylamine Hydrochloride
Chloroform
Iso Amyl Alcohol
Isobutyl Alcohol
Iso Propyl Alcohol
Lithium Hydroxide
Magnesium Oxide
Malonic Acid
Methyl Cellulose 4000
Methyl Formate
Morpholine
Methyl Ethyl Ketone
N. Butyric Acid
H. Heptane
Quinoline
P.C.B.A.
Paraformaldehyde 84-85%
Perchloro Ethylene
Petroleum Ether 40-60%
Sodium Methoxide
Thiourea
Tri-Chloro Ethylene Glycol
Tertiary Butyl Alcohol
Zinc Dust

RAJENDRA & COMPANY

Gopal House (2nd Floor), 7/9, Kumbharwada Cross Lane,
Veer Vithaldas Chandan Street, BOMBAY-400 003.
Phone: 321020/339968/344937 Residence: 6124644/6122149

Atropine Sulphate
Homatropine Hydrobromide
Epidrin Hydro Chloride
Capavirine Hydrochloride
Cyproheptadrin
Indo methacin
Sulphadoxin ★ Pepsin
Neomycin Sulphate

3, Yogeshwar, 135, Kazisayed Street, Bombay-400 003.
one Business : 331195/326542Phone Home : 8512755/5112967

FORBES
PHARMACEUTICALS

For Your Requirements Of :

MONO ETHYLENE GLYCOL

AND

1. Acetic Acid
2. Behenyl Alcohol
3. Glauber's Salt
4. Hydrazine Hydrate
5. Lithophone
6. N. Heptane
7. Permanent Yellow GRL-80 Hoechst German make for Printing Ink
8. Neo Zopon Dyes — Yellow & Orange
9. Ethyl Acrylate
10. Para Chloro Benzene Sulphonamide Acid
11. Solsperse — ICI, U.K. make Dispersant for Paint and Printing Ink
12. Di Chloro Diphenyl Sulphone
13. Desmorapid Catalyst for Foam Industry
14. Ion Exchange Resins
15. Water Treatment Plants & Chemicals.

Please Contact : **M/s. DOSHI & COMPANY**
7, Premjivan, 87, Kazi Sayed Street,
Khand Bazar, Bombay-400 003.
Phone: 343480 Resi.: 455147, 462564 Gram: DHRIECHEM
Ahmedabad Phone: 877156; Resi.: 407909

IRON POWDER

(REDUCTION GRADE)

THACKER PULVERIZING CO.

11, Amar Jyot, Dr. R. P. Road, Bombay - 400 080.
Phone : 560 07 84/561 78 12.

MANGANESE SULPHATE 98%
NICKEL CHLORIDE
NICKEL SULPHATE
SODIUM ACETATE 98%

VORA CHEMI TRADE PVT. LTD.
265, Samuel Street, Bombay-400 003.
Phones : 333762/63/64/325265/345377

EVALUATE
IF YOU DON'T
JAY COLOUR MATCH 4800 SYSTEM
YOU RUN THE RISK OF LOOSING
TWENTY PERCENT ON YOUR COLOUR COST
FOR EVER.

JAY COLOUR MATCH 480
is fully dedicated system fo
colour matching require
ments. It substitutes manua
colour judging with sophisti
cated new generation spec
trophotometer and matche
the shades with compute
rised calculations based o
our latest colour matchin
software. This not onl
produces perfect colou
shades of your requiremer
but also gives you recipes base
on lowest colour cost, generatin
tremendous saving in your dyein
and printing cost. Would you lik
to have a demonstration to chec
and confirm ? **Contact us o**
Phone 4946181 or 494622

JAY ELECTRONICS
E-16 EVEREST, TARDEO ROAD, BOMBAY 400 034 (INDIA)
TELEX: 011-75379 GRAM: RAFFORD

REGD NO. TN/MS (C) 395 ISSN 0046 6500 R. N. No. 1972/57

Red and white lines,
Black and white lines.
Dark shades or pale shades.
They all blend well with
polyester and its blends.

Lively Lines!

Dispersol dyes

Perfect for polyester and polyester blends.

Atic Industries Limited
Post Atul, 396 020, Dist. Valsad, Gujarat.

aminar/ATIC 88-3